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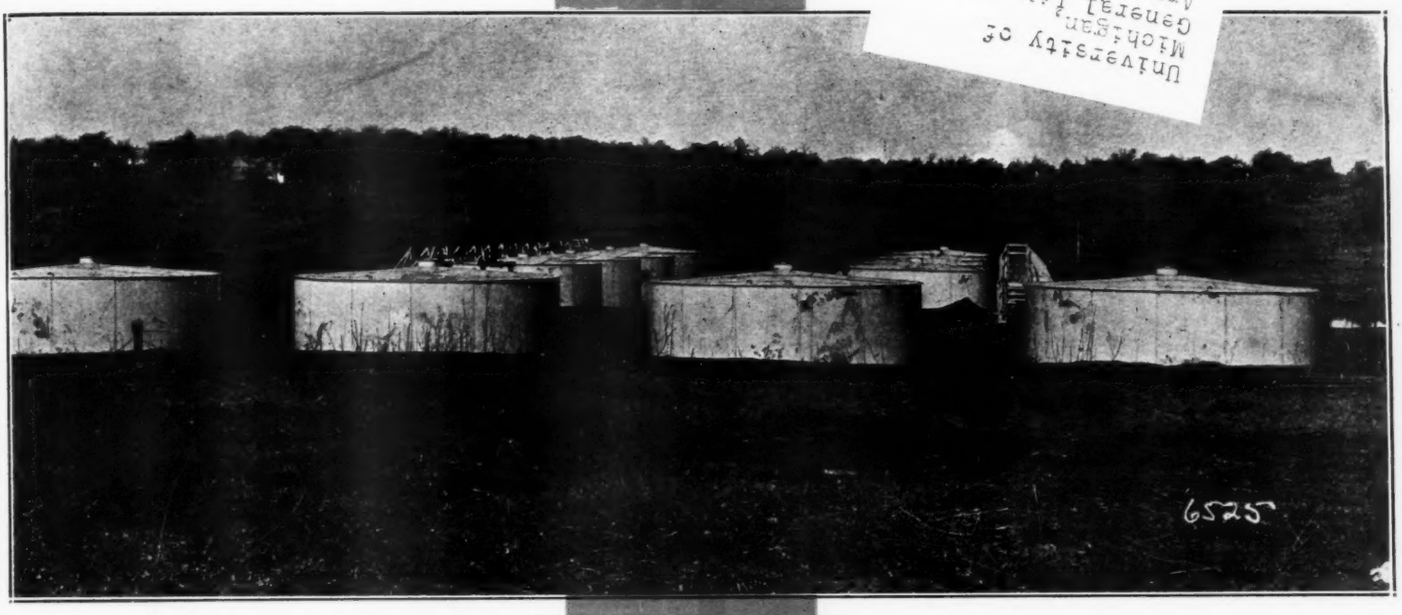


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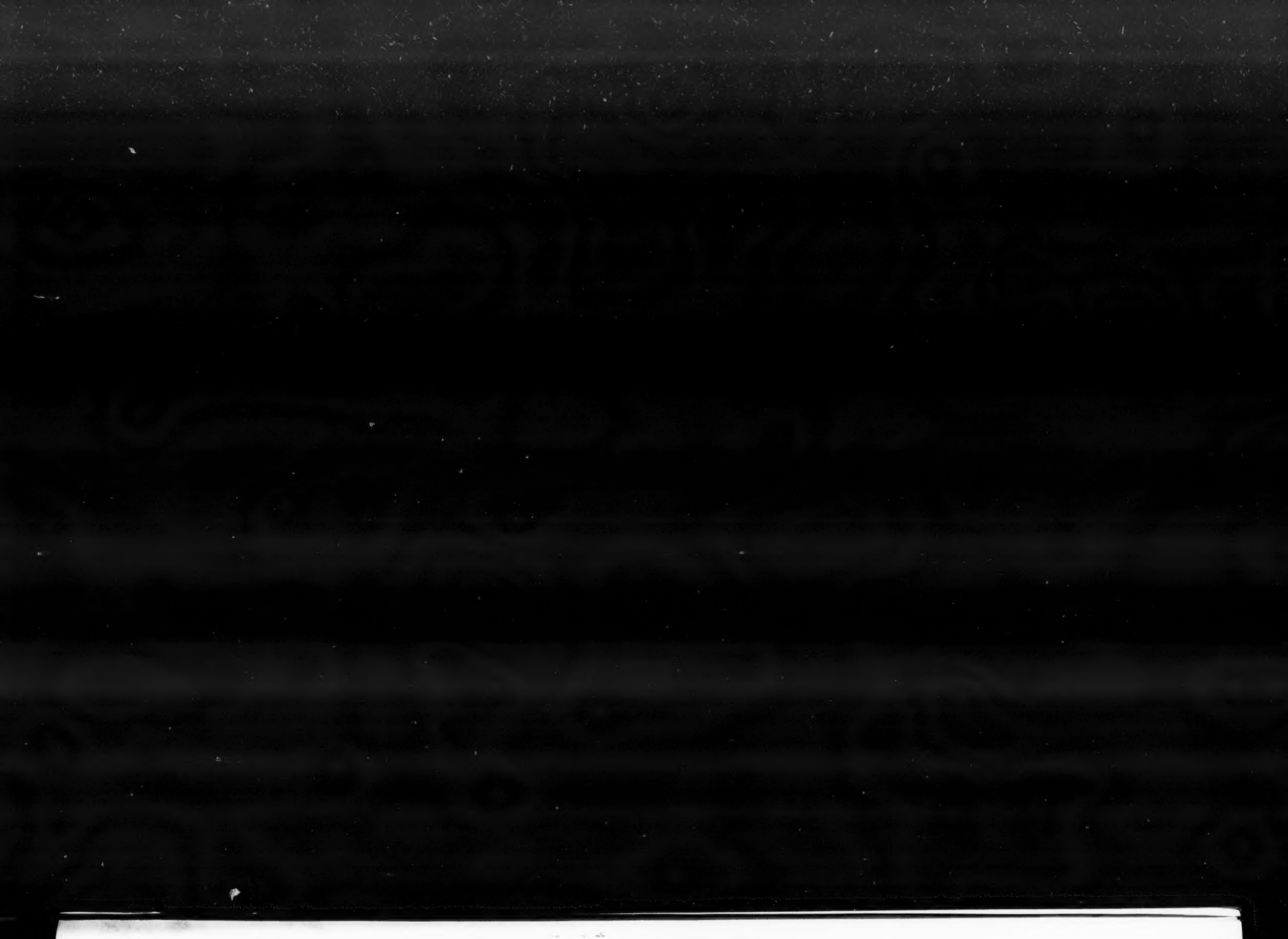

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Refinery Section Starts on Page 178

# Production Lowest in Over Four Years

**Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.**

## Present Statistical Position of Industry Causes Many Queries as to Reason for Exceptionally Low Prices

By Andrew M. Rowley

**Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.**

Crude oil production in the United States last week dropped to the lowest average recorded since the week ending August 28, 1926. The average daily demand for gasoline (domestic consumption plus exports) in 1926 was 838,000 barrels. During the first 10 months of this year that demand has averaged 1,290,000 barrels, an increase of 50 per cent over 1926. The price of 36 gravity crude oil in August, 1926, was $2.29 per barrel. Today it is 95 cents. The gasoline yield from crude oil in 1926 averaged 38 per cent. So far this year it has averaged 47 per cent. Stocks of gasoline on November 1, 1926, totaled approximately 36,000,000 barrels as compared to about 38,000,000 barrels on the same date this year. Based on demand, gasoline stocks in 1926 really were greater than on the same date this year. The quantity of crude in storage this year was about 125,000,000 barrels more than in 1926.

Such is the picture being viewed by the industry and which causes the question to be asked so frequently: "Why are crude oil prices so low?" There is little or no basis for the assumption a drilling orgy would be instituted were crude oil prices raised above the present distress level. The big majority of operators—large and small—in each of the main producing areas, have co-operated wholeheartedly in the conservation movement and their efforts now are bolstered by official action by the different states and legal decisions. It seems logical to assume they would continue to co-operate, probably more willingly, were price schedules readjusted to permit a reasonable return on investment and operations rather than the losses being experienced to such a large extent now.

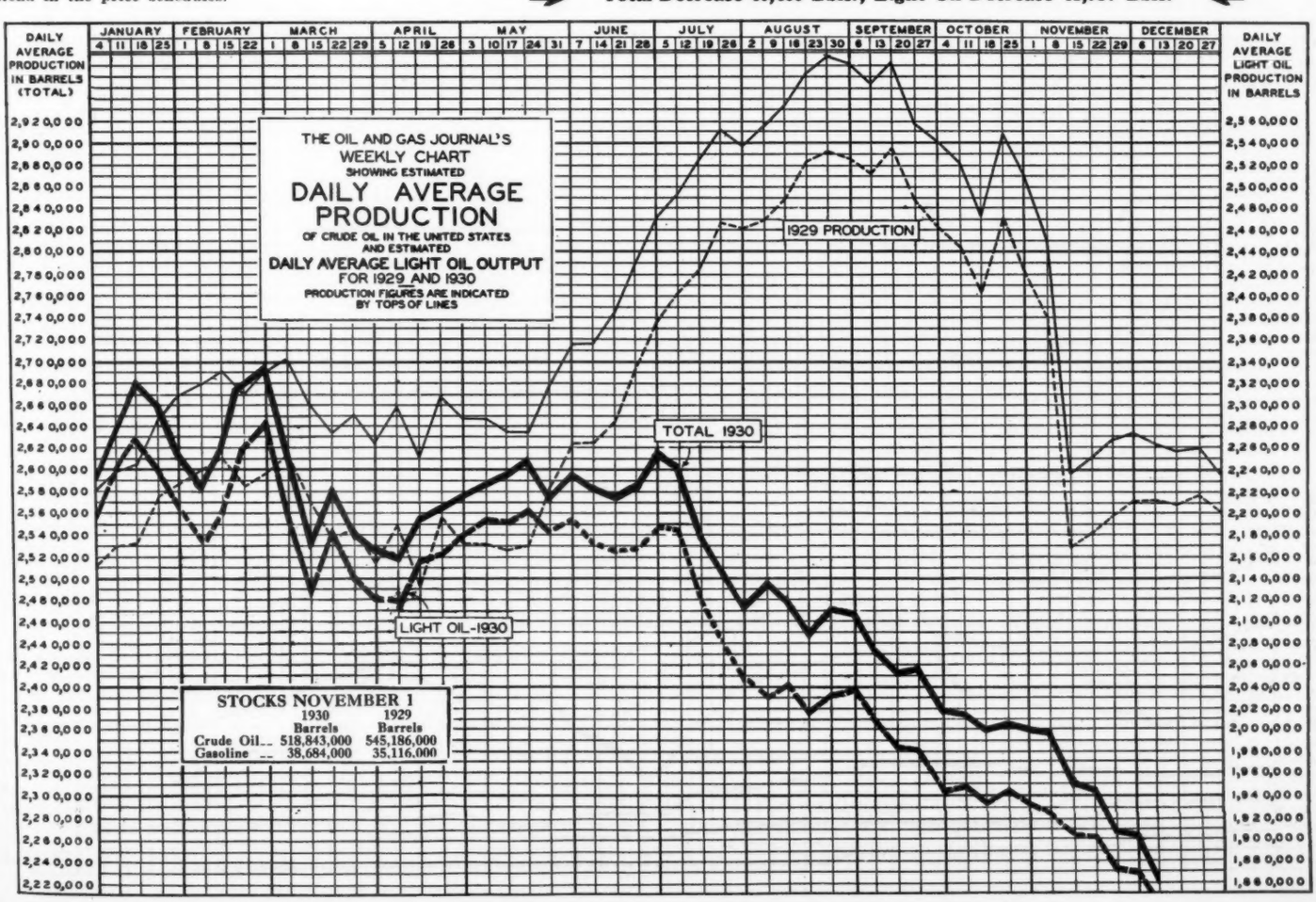
Refinery gasoline prices are entirely too low and the spread between the refinery and the tank wagon price too great. Reducing prices will never stabilize the situation and the industry cannot expect present conditions to improve until there is an upward trend in the price schedules.

### PRODUCTION IN THE UNITED STATES

**Estimated daily average production of light and heavy gravity oil in the United States for week ended December 6 and a comparison with the previous week follows:**

| | Dec. 6 | | Nov. 29 | |
|---|---|---|---|---|
| | Light | Heavy | Light | Heavy |
| **Oklahoma—** | | | | |
| Oklahoma City | 87,280 | ..... | 92,735 | ..... |
| Seminole-St. Louis | 145,910 | ..... | 154,955 | ..... |
| Remainder of State | 218,330 | ..... | 238,720 | ..... |
| Total Oklahoma | 451,520 | ..... | 486,410 | ..... |
| **West Texas—** | | | | |
| Hendricks | 55,130 | ..... | 56,515 | ..... |
| Yates | 107,330 | ..... | 104,245 | ..... |
| Remainder | 104,306 | ..... | 107,262 | ..... |
| Total West Texas | 266,766 | ..... | 268,022 | ..... |
| North Louisiana | 38,890 | 5,280 | 38,925 | 5,300 |
| Arkansas | 16,010 | 35,360 | 16,175 | 35,720 |
| North Central Texas | 104,910 | ..... | 105,070 | ..... |
| Texas Panhandle | 76,735 | ..... | 73,080 | ..... |
| East Central Texas | 41,657 | ..... | 41,656 | ..... |
| Kansas | 104,940 | ..... | 107,420 | ..... |
| Total Mid-Continent area | 1,101,428 | 40,640 | 1,136,758 | 41,020 |
| Gulf Coast | ..... | 182,884 | ..... | 182,460 |
| Southwest Texas | ..... | 91,049 | ..... | 89,325 |
| Eastern | 111,000 | ..... | 112,000 | ..... |
| Rocky Mountain area | 101,435 | ..... | 103,342 | ..... |
| **California—** | | | | |
| Santa Fe Springs | 93,500 | ..... | 94,000 | ..... |
| Long Beach | 94,750 | ..... | 96,000 | ..... |
| Playa Del Rey | 43,500 | ..... | 42,500 | ..... |
| Elwood | 35,000 | ..... | 35,500 | ..... |
| Ventura Avenue | 48,000 | ..... | 49,000 | ..... |
| Kettleman Hills | 24,750 | ..... | 25,000 | ..... |
| Remainder of State | 175,000 | 84,000 | 176,000 | 84,500 |
| Total California | 514,500 | 84,000 | 518,000 | 84,000 |
| Total United States | 1,828,363 | 398,573 | 1,870,100 | 397,305 |
| Grand total | 2,226,936 | | 2,267,405 | |

**Total Decrease 40,469 Bbls.; Light Oil Decrease 41,737 Bbls.**



# Minor Changes in Refinery Markets

## Conditions Point to Lower Prices in Several Products. Refiners Concerned With Contracts on Fuel Oil and Gasoline

By C. O. Willson

Refined markets as reflected by conditions in the Oklahoma (Group 3) and other Mid-Continent groups continued to point to lower prices on most products. The general gloom which settled over the Mid-Continent market last month, thickened during the past week due to developments in the industry and except for the action of a few individual refiners, there has been no effort to change the downward price trend in refinery products.

Most of the selling trade appear to be convinced that additional reductions in crude oil and gasoline tank wagon and service station prices are assured and until the bottom has been reached in these two price structures, they feel that it is useless to attempt to stabilize the refined market. Regardless whether this position has any merit or not, it is the attitude being taken by a substantial group of refiners and so long as it continues, market observers do not anticipate any improvement in prices.

The action of the Prairie Oil & Gas Co. in announcing that it would cease its purchases of crude starting the first of the year was the most important development of the week. This announcement which is explained in detail elsewhere in this issue, has tended to strengthen the position of those who have been predicting lower posted schedules for crude oil. The general curtailment program of refiners in the Mid-Continent and other parts of the country is reducing the crude oil requirements so that despite the proration programs, it has been difficult to obtain outlets for all the available supplies, a condition which was responsible for the action of the Prairie company.

It is no secret that several refiners have been able to purchase part or all of their crude oil supply under posted prices. Refiners who buy their crude oil from producers state that the reductions in refinery prices since the last general reduction in posted schedules, has absorbed all the gain to them and they are now in the same position that they were in the summer and fall months. They are seeking lower crude oil prices in order to break even in their plant operations and it is conceded that this situation may force action on the part of the major crude oil buyers as it did in October.

The unsettled crude oil situation and low refinery prices on gasoline are reflected in the tank wagon and service station prices of the Middle West and Southwest. Those in touch with the retail market state that price cutting is as general as it was in the early fall before the first reduction in tank wagon and service station prices was announced. The operators of cut price stations have been able to purchase gasoline at prices which offset the declines in posted schedules so they are again underselling the larger marketers from 1 to 5 cents a gallon.

This condition, coupled with a disappointing consumption in some parts of the country, has reduced the gallonage of the larger distributors. It is believed that these companies will shortly be forced to recognize this competition by again reducing their own quotations.

### Contract Situation

The larger distributors are not so much concerned with the current spot market as they are with the contract situation. The contracts on fuel oil and gasoline have generally netted the refiners more than the spot market throughout the year. Most of the fuel oil contracts are with the southwestern railroads and many of them expire at the end of the year. The buyers are seeking lower base prices in their renewals, one contract now being proposed by a large railroad buyer, starting with a base price of 50 cents with the seller to get 60 per cent of any advance in crude oil schedules. Last year a similar contract started with a base price of 65 cents.

In the gasoline end, jobbers are slow in renewing contracts on the same basis as last year. This is due to the fact that the contract prices were generally higher than the spot market and some jobbers feel that the agreements worked an unwarranted hardship on them and placed them in a position of being unable to compete with other jobbers who bought from various sources at the lowest prices obtainable. Among the latter are those who have made a practice of underselling the general tank wagon and service station markets. Most contracts with jobbers are based on weighted average gasoline prices in Oklahoma as reported in publications with the jobber guaranteed a minimum of 5 or more cents under the

(Continued on Page 192)

### REFINED MARKET BAROMETER

There were scattered reductions in gasoline at refineries and export terminals during the past week. The consumer demand for motor fuel is showing more than the expected seasonal decline in some areas and with more than adequate supplies prices have continued to decline. Concessions in export movements have also been the rule. Export prices on kerosene were lowered at the Gulf Coast. Prices for domestic movement are generally unchanged. Furnace oil material of low cold test and low flash is in demand in practically all the northern sections resulting in firm prices at refineries. Heavy fuel oils continue weak at coastal points where heavy importations are a factor in the market. Natural gasolines generally weak and prices lower. Fractional reductions in eastern wax prices. Lubricants slow.

**Mid-Continent**—Refinery gasolines and natural gasolines generally weak and prices lower on all grades of the latter. Kerosene demand slow. Fair demand for low cold test gas oil, distillate and fuel oil. Little demand for high cold test fuels and prices lower. Lubricants and wax unchanged.

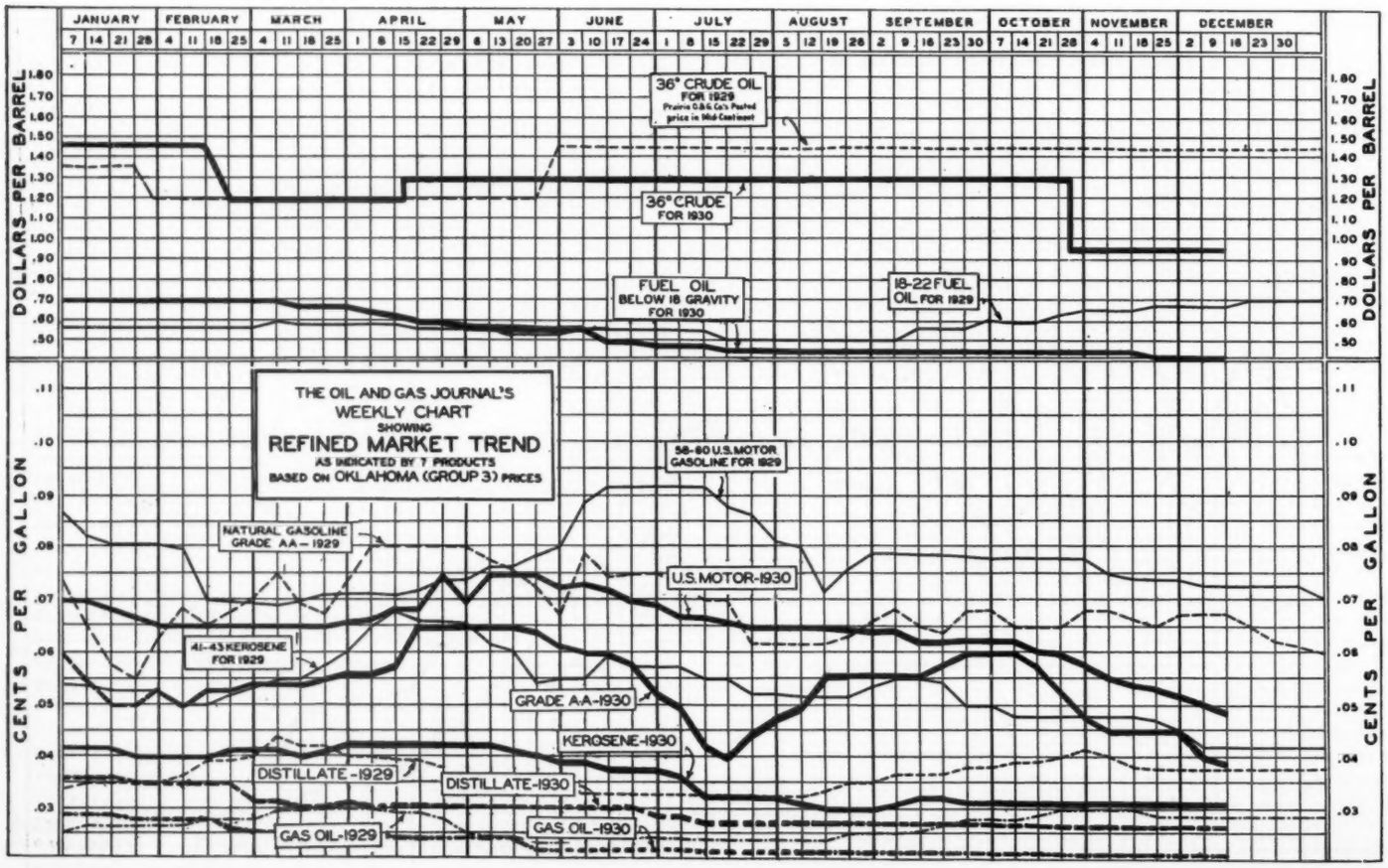
**East Coast**—Fuel oil soft. Gasoline prices at refineries and terminals for domestic movement reduced. Fair movement of kerosene. Lubricants sluggish. Slight reductions in some grades of wax.

**Gulf Coast**—Fuel oil weak due to competition of imports. Red and pale oils freely offered by sellers. Gas oil prices lower.

**California**—Gasoline market continues weak and general reductions expected. Natural gasolines weak. Fuel oil prices lower for domestic and export movement.

**Pennsylvania**—Bright stocks and neutral oil movement routine. Gasoline slow. Fair demand for kerosene.

**Chicago**—Fair movement of gasoline on contracts. Spot business taken at new low prices. Strong demand for gas oil and high gravity fuel oil of low cold test. Other products unchanged.



# California Decision Is Very Positive

## Power of State to Enact and Enforce Gas Conservation Legislation Upheld in Every Particular

By L. P. Stockman

LOS ANGELES, Calif., Dec. 8.—The California Supreme Court in one of the most positive rulings ever made by that body unanimously declared the California gas conservation law definitely constitutional and upheld the power of the State to enact such regulatory legislation on the grounds that the State has a primary and supreme interest in oil and gas and because of its fugitive nature can consequently regulate the manner of production and prohibit wasteful use.

The court held "because of the peculiar nature of oil and gas the public has a definite interest in their preservation from waste and destruction. This is true because of their character as natural resources and also because the public interest has attached by virtue of positive statutory law or by court judgment independent of statute. In seven states of the Union legislation making unlawful the unreasonable waste of natural gas has been upheld." These states are Indiana, Kentucky, Wyoming, Oklahoma, Louisiana, Texas and Kansas. The decision of the Supreme Court which followed closely on the heels of a somewhat vague ruling of the California District Court of Appeal overturns the common law rule of property in oil and gas which has been in effect in California for 40 years and gives the State qualified ownership of oil and gas deposits similar to its proprietary interest in fish and water resources. This is said by some to be contrary to the United States Supreme Court decision in the Pennsylvania versus West Virginia suit which held that commerce begins where production ends.

### Gas Ratio the Limit

The California Supreme Court recognized the primary use of gas as its lifting power but at the same time the decision means that one cannot produce natural gas in excess of the optimum gas-oil ratio which is defined by the court as being the smallest number of cubic feet of gas which can be produced with each barrel of oil from the same well at the same time. The legislation in question holds on this point that "if it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas pipe line connections between such other wells and the place of utilization of such gas, the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field."

### Basis of Suit

The decision of the California Supreme Court was the result of a petition filed by the Twin Bell Syndicate, Star Petroleum, and the second Twin Bell Syndicate, for a writ of supersedeas to stay the effect of a preliminary injunction pending an appeal. The petitioners contended, first, that the legislation in question was unconstitutional because it took property without due process of law and without compensation; secondly, that the term unreasonable waste was too vague, and thirdly, that the order of the Superior Court was arbitrary and in violation of state and federal constitutions. The State Supreme Court, unlike the District Court of Appeal, passed on all three contentions, the decision being in favor of the State.

### Question of Constitutionality

Commenting on the constitutionality of the measure the court says: "Whatever refinements may be suggested as to the definition of the nature of the property right in gas and oil beneath the surface and uncaptured we are entirely satisfied that the waste of these natural resources may be regulated and the unreasonable waste thereof may be prohibited in the exercise of the police power of the State and that the statute in question is not subject to the objections first advanced by the petitioners."

### Definition of Waste

In overruling the objection that the term unreasonable waste was too vague and indefinite to provide a definite code of procedure the Supreme Court held:

"Gas which has been allowed to come to the surface without its lifting power having been utilized to produce the greatest quantity of oil may be said to amount to an unreasonable waste of natural gas. That the legislature intended to prohibit such waste of natural gas and so defined the term unreasonable waste is quite apparent. It would seem that the legislature has plainly adopted the standard that gas may not be produced under existing conditions where the production thereof so greatly exceeds the market demand therefor in quantities exceeding a reasonable proportion to the amount of oil produced as the standard to be applied and beyond which the production is prohibited as being unreasonable waste of natural gas. The standard so adopted by the legislature is, we think, not objectionable as being too vague or uncertain of application."

### Effect on Price

A little further on in the decision the court says: "It is contended that the real purpose of the statute is to curtail the production of oil so as to regulate and stabilize the market price thereof. We cannot agree with this contention. Obviously the enactment is an effort on the part of the legislature to conserve for present and future needs great natural resources in which the people of the State are interested. It may be that the enforcement of the statute throughout the gas and oil-producing sections of the State may have an effect upon the market price of oil. For this reason the subject matter of the act is a delicate one for legislative treatment and judicial cognizance but the fact that the field of economic law to some extent may thus be invaded may not justify the avoidance of the statute."

The decision of the California Supreme Court, which is only reviewable by the United States Supreme Court, is of special interest because James Bennett, representing the department of natural resources, will use the California court decision as a precedent when presenting its case involving gas waste at Kettleman Hills on December 15. Judge Strother, incidentally, is one of those rare jurists who does not tolerate unnecessary delays or permit the customary red tape to retard action. For this reason it looks like Kettleman Hills operators will be enjoined from further waste of natural gas, provided, of course, that the mechanical conditions are such that the court can safely grant relief without seriously jeopardizing life and property. This may be a very important factor and one which may prove a stumbling block as the defendants will undoubtedly bring in a number of experts to testify that at least two wells cannot be shut down. This will prove an interesting decision because there are a number of qualified field men who maintain that it is feasible to shut down every producing well at Kettleman Hills.

No other suits to reduce waste of natural gas are pending in California at present but it is a foregone conclusion that injunction proceedings will be started at Elwood, Lost Hills, Belridge and other fields where any waste of natural gas exists early next year.

# Prairie Quits Buying Oil December 31

## For 30 Years the Largest Mid-Continent Crude Purchaser. Pipe Lines Connected to Over 32,000 Customer Wells

By James McIntyre

The Prairie Oil & Gas Co. will cease to be a purchaser of crude oil on December 31. The company, on Friday, December 5, announced that effective January 1, 1931, and until further notice, it will withdraw as a general purchaser of crude oil, but that this action will not prevent the producers from whom it has been purchasing oil from selling and having their oil transported by available common carrier pipe line facilities to such outlet as the producer may have. In other words the Prairie Pipe Line Co. will be willing to discuss rates and other considerations looking to the transportation of crude oil to any point included in its tariff schedules, which means any one of hundreds of points between the Mid-Continent Field and the Atlantic and Gulf Seaboard at which producers may find buyers for their oil.

### Official Announcement

The official announcement of the Prairie Oil & Gas Co. is as follows:

"For years the Prairie Oil & Gas Co. as a crude oil purchaser has given its best efforts to obtaining and holding market outlets for its crude oil purchases. For the protection of its producing and refining customers it has, from time to time, increased its oil in stock when its market outlet did not equal its purchases. The market outlet of the company has been reduced to the extent that it now announces that, effective January 1, 1931, and until further notice, it withdraws as a general purchaser of crude oil. This action is in accord with its recent statements of policy that its crude oil purchases will be kept within the requirements of its markets. The company is now and always has been an advocate of conservation and of proration and will continue to operate in harmony therewith.

"The fact that the Prairie Oil & Gas Co. will cease its general purchase of crude upon the market does not prevent the producers from whom it has heretofore purchased oil from selling and having their oil transported by available common carrier pipe line facilities to such market outlet as the producer may have."

### Great Record as a Buyer

The full significance of this action of the Prairie Oil & Gas Co. entails a brief review of the history of the big purchasing, gathering and transportation system since it emerged from the Forest Oil Co., western division, into the Prairie Oil & Gas Co. in Kansas, long before there was a barrel of oil produced in Oklahoma or North Texas. For years it was practically the only oil buyer in Kansas and Oklahoma and during those years the Prairie pipe line was extended into every new pool opened in Kansas and northern Oklahoma, and its gathering lines entered upon nearly every lease in the multiplicity of pools developed with the passing of the years. The company grew with the growth of the Kansas, Oklahoma, North Central and East Central Texas fields and when the Panhandle fields in Texas were in need of outlets it extended its pipe line system to that area and became a prominent purchaser and shipper. As its purchases increased so did its outlets increase, but not in the same proportion. The company bought more oil than it sold piling up surplus oil from the Glenn Pool in Oklahoma in 1907-08 and from the Cushing Field in the same State in 1915-16, until it had accumulated about 55,000,000 bbls. of crude oil in its tank farms in Oklahoma and Kansas.

### Served Atlantic Plants

During and just after the European war the company was enabled to get rid of many millions of barrels of stored crude, but in the past nine years it has added to storage such a volume each year that it has now more crude oil in steel tanks than it had before the war.

Up to a few months ago the Prairie Oil & Gas Co. had some of the largest refiners in the United States as its customers. Prairie crude was refined in the big plants of New York, Bayonne, N. J., Marcus Hook, Pa., and points between Oklahoma and the Pennsylvania line. Some of its Atlantic Coastal customers meanwhile formed their own producing companies and pipe line companies in Oklahoma, Kansas, Texas, Louisiana and Arkansas and also became general purchasers of crude in the territory and by degrees became independent of the Prairie, and in time ceased purchasing from that company.

The Humble Oil & Refining Co. and Humble Pipe Line Co.; the Magnolia Petroleum Co. and Magnolia Pipe Line Co.; the Carter Oil Co. and the Oklahoma Pipe Line Co.; the Standard Oil Co. of Louisiana and the Louisiana Pipe Line Co., each of which became large producers, buyers or transporters of crude oil in one or more of the states of Kansas, Oklahoma, Texas, Louisiana and Arkansas took the place of the Prairie in supplying oil to the Standard Oil Co. of New Jersey, Standard Oil Co. of New York and the Vacuum Oil Co. on the Atlantic Coast. More recently the construction of the lines of the Ajax Pipe Line Co., the Gulf Pipe Line Co. of Pennsylvania and the Texas-Empire Pipe Line Co. affected the Prairie, either as a buyer or a transporter of crude to points north and east.

Officials of the Prairie Oil & Gas Co. considered a long time before they took the step which led to the company's prospective withdrawal as a buyer of oil.

(Continued on Page 135)

# Crude Runs Lowest Since April, 1928

## Mid-Continent Refinery Operations Curtailed as Gasoline Demand Shows a Seasonal Decline. Weak Market a Factor

By W. T. Ziegenhain

Mid-Continent refiners will run 29,240 bbls. less crude daily during December compared with last month and the average for the area will be lowest since April, 1928. The schedule of refinery operations as forecast by the individual companies December 1 provides for total charges in all Mid-Continent areas of only 478,360 bbls. daily, compared with 506,700 bbls. during November and 540,630 bbls. a year ago. The principal factor in reducing the runs has been the shutting down of a comparatively large number of plants. The operating plants in December will number 125, whereas 138 were operating in November. This situation, in turn, simply reflects the weakened refined oil market and the inability of the smaller companies to move their products. To a limited extent, the curtailment of operations is also due to a shortage of crude in local areas where proration has decreased the supply below the amount the refiners in that territory would run.

**RUNS TO STILLS AT MID-CONTINENT REFINERIES**

| | |
|---|---|
| **1928** | |
| June 1 | 487,135 |
| July 1 | 506,310 |
| August 1 | 543,625 |
| September 1 | 563,270 |
| October 1 | 547,820 |
| November 1 | 550,000 |
| December 1 | 520,000 |
| **1929** | |
| January 1 | 508,550 |
| February 1 | 506,800 |
| March 1 | 514,950 |
| April 1 | 530,530 |
| May 1 | 577,500 |
| June 1 | 585,030 |
| July 1 | 565,800 |
| August 1 | 555,250 |
| September 1 | 552,300 |
| October 1 | 544,720 |
| November 1 | 545,473 |
| December 1 | 540,630 |
| **1930** | |
| January 1 | 535,460 |
| February 1 | 519,355 |
| March 1 | 531,500 |
| April 1 | 555,250 |
| May 1 | 574,300 |
| June 1 | 572,250 |
| July 1 | 548,475 |
| August 1 | 526,400 |
| September 1 | 498,710 |
| October 1 | 518,800 |
| November 1 | 506,700 |
| December 1 | 478,360 |

Oklahoma refinery operations have been curtailed most, the runs showing a reduction of 10,700 bbls. and nine plants shut down which operated all or a part of November. Only one of the six refineries in Oklahoma City are operating at present and no definite plans have been formulated whereby the others will operate over the balance of the month. West Texas is the second largest factor in reducing the total runs. Refineries there will charge 8,590 bbls. less crude daily and two plants will be shut down for the month. The North Louisiana area is also an important factor in reducing runs. One refinery has shut down for the month and total crude charges will be 7,850 bbls. less. Arkansas plants will reduce their runs slightly while Kansas and North Texas refineries will maintain approximately the same schedules.

### Oklahoma Operations

In addition to shutting down nine plants in Oklahoma, there has been a general curtailment of runs in the operating plants. Gasoline shipments have declined with the coming of cooler weather and refiners are maintaining a lower schedule of runs which will not cause them to add materially to stocks. This seems to offer the only apparent means of avoiding a duplication of conditions existing this year.

What turn this program would take, were proration rules broken remains questionable. Some contend that lower crude prices are likely in the immediate future and that cheap crude will prove an incentive for refiners, in general, to increase runs. This can not be substantiated by present experience, however, for crude is now posted at prices as low as any time in the past 15 years and the present crude runs are also abnormally low. This is accounted for by the fact that refined oil prices reflect the crude market and these prices are usually fully as weak as crude, during those periods of low crude prices.

Those companies shutting down their plants include the Capital City Refining Co., Oklahoma City; Crump Refineries, Inc., Oklahoma City; Electrol Refining Co., Oklahoma City; Gulf States Refining Co., Oklahoma City; Illinois Refining Co., Cushing; Imperial Refining Co., Ardmore; Peacock & Peveto Refining Co., Oklahoma City; Sinclair Refining Co., Muskogee; and the Yale Oil Corp. at Yale. In most cases, the shutdown has been ordered as a result of the weak refined oil market structure but at the same time, several plants have prepared improvement programs. The Illinois Refining Co. has announced it will double the capacity of its plant to 6,000 bbls. and the Yale Oil Corp. will also make major repairs and alterations.

Contrary to the trend, the Marathon Oil Co. is again operating in its Boynton plant and has thus resumed operations in all of the refineries taken over from the Transcontinental Oil Co. Plans have also been prepared to increase the capacity of the Bristow refinery and add equipment for the manufacture of lubricating oils but nothing definite has been decided upon.

### North Central Texas

Except for shutting down the Central Texas Refining Co. plant at Angus the North Central Texas operations remain unchanged. There has been a tendency to maintain crude runs at a relatively high mark in the Wichita Falls area because local conditions permit several refiners to buy crude below the posted price. While the refiners have not posted lower prices as is generally done, it is generally understood that advantageous contracts have been in effect and as a result, runs have been maintained fairly high.

### West Texas

West Texas refiners have subsequently reduced their runs, the total for December being 57,360 bbls. per day compared with 65,950 bbls. during November. This reduction has been effected by cutting the runs in comparatively few plants and as a result of temporarily shutting down the Del Rio Refining Co. plant at Del Rio, following a fire. This company was recently acquired by the Marathon Oil Co.

### North Louisiana and Arkansas

Substantial reductions were also made in the runs in the North Louisiana and Arkansas area, the principal change being the shutting down of The Texas Company plant at Shreveport, La. The company has followed a policy of operating this plant intermittently in accordance with demands and the present shutdown is temporary.

### Kansas

There are no important changes in the refinery operation in Kansas. Crude runs are slightly higher than a month ago and the schedules of the individual plants are also unchanged.

## MID-CONTINENT REFINERY OPERATIONS

(Based on Operations December 1, 1930, and November 1, 1930)

| Districts— | No. of plants Dec. 1 | Daily crude cap. (bbls.) | Daily crack. cap. (bbls.) | Plants oper. Dec. 1 | Runs to stills Dec. 1 | Plants oper. Nov. 1 | Runs to stills Nov. 1 | Daily decr. Dec. 1 |
|---|---|---|---|---|---|---|---|---|
| Arkansas | 9 | 47,800 | 16,750 | 9 | 25,300 | 9 | 27,400 | 2,100 |
| Kansas | 15 | 142,000 | 77,400 | 14 | 82,950 | 14 | 82,500 | *450 |
| North Louisiana | 6 | 59,250 | 21,000 | 4 | 23,600 | 5 | 31,450 | 7,850 |
| Oklahoma | 51 | 336,300 | 117,050 | 38 | 182,100 | 47 | 192,800 | 10,700 |
| North and Central Texas | 40 | 186,900 | 34,750 | 36 | 107,050 | 37 | 106,600 | *450 |
| West Texas | 32 | 151,300 | 44,700 | 24 | 57,360 | 26 | 65,950 | 8,590 |
| Total | 153 | 917,550 | 311,650 | 125 | 478,360 | 138 | 506,700 | 29,240 |

*Increase.

### REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year)

| Company and location— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Anderson-Prichard Oil Co., Cyril | 5,000 | 4,000 | 4,500 |
| Barnsdall Refineries, Inc., Barnsdall | 6,000 | 3,600 | 3,500 |
| Barnsdall Refineries, Inc., Okmulgee | 10,000 | 3,000 | 3,500 |
| Bell Oil & Gas Co., Grandfield | 4,500 | 1,600 | 1,500 |
| Black Gold Refining Co., Oklahoma City | 1,500 | 600 | 600 |
| Capital City Refining Co., Oklahoma City | 2,500 | (*) | 800 |
| Champlin Refining Co., Enid | 16,000 | 13,000 | 13,000 |
| Citizens Refining Co., Seminole | 1,000 | (*) | (*) |
| Continental Oil Co., Sapulpa | 10,000 | 1,500 | 1,500 |
| Continental Oil Co., Ponca City | 30,000 | 15,000 | 15,000 |
| Crump Refineries, Inc., Oklahoma City | 2,000 | (*) | 1,200 |
| Cushing Refining & Gasoline Co., Blackwell | 1,800 | 1,000 | 1,000 |
| Cushing Refining & Gasoline Co., Cushing | 3,500 | 1,200 | 2,000 |
| Deep Rock Oil Corp. (Shaffer), Cushing | 10,000 | 10,000 | 10,000 |
| Eason Oil Co., Enid | 5,000 | 1,300 | 2,000 |
| Electrol Refining Co., Oklahoma City | 3,000 | (*) | 500 |
| Empire Oil & Refining Co., Cushing | 5,000 | (*) | (*) |
| Empire Oil & Refining Co., Okmulgee | 4,000 | 4,000 | 4,000 |
| Empire Oil & Refining Co., Ponca City | 8,000 | 7,500 | 6,500 |
| Garber Refineries, Inc., and Omar Refining Co., Garber | 3,500 | 2,300 | 2,500 |
| Globe Oil & Refining Co., Blackwell | 7,500 | 5,500 | 5,500 |
| Globe Oil & Refining Co., Cushing | 15,000 | 6,000 | 6,000 |
| Gulf States Refining Co., Oklahoma City | 2,500 | (*) | 1,000 |
| Illinois Oil Co., Cushing | 3,000 | (*) | 2,000 |
| Imperial Refining Co., Ardmore | 5,000 | (*) | 3,000 |
| Johnson Oil Refining Co., Cleveland | 6,000 | 5,000 | 5,000 |
| Mid-Continent Petroleum Corp., West Tulsa | 40,000 | 19,000 | 20,000 |
| Marathon Oil Co., Boynton | 2,500 | 1,800 | (*) |
| Marathon Oil Co., Bristow | 5,000 | 3,500 | 3,500 |
| Northwestern Refining Co., Tonkawa | 3,000 | (*) | (*) |
| Peacock and Peveto Refining Co., Oklahoma City | 3,000 | (*) | 500 |
| Peppers Gasoline Co., Covington | 1,000 | 700 | 700 |
| Phillips Petroleum Co., Okmulgee | 5,000 | 3,300 | 3,300 |
| Producers Oil Co., Bristow | 2,500 | 1,300 | 1,300 |
| Producers & Refiners Corp., West Tulsa | 6,000 | 4,000 | 4,000 |
| Pure Oil Co., Ardmore | 5,000 | 2,000 | 2,000 |
| Pure Oil Co., Muskogee | 9,000 | 6,000 | 6,000 |
| Rock Island Refining Co., Beckett | 3,500 | 3,500 | 3,500 |
| Sinclair Refining Co., Muskogee | 1,000 | (*) | 400 |
| Sinclair Refining Co. (Pierce), Sand Springs | 8,000 | 6,500 | 6,500 |
| Sun Oil Co., Yale | 5,000 | 4,500 | 4,500 |
| Sunray Oil Co., Allen | 3,000 | 2,300 | 2,100 |
| The Texas Company, West Tulsa | 15,000 | 15,000 | 15,000 |
| Texas Pacific Coal & Oil Co., Wynnewood | 2,500 | 1,800 | 1,600 |
| Tidal Oil Co., Drumright | 15,000 | 9,000 | 10,000 |
| Western Oil Corp., Beckett | 2,000 | 1,500 | 1,500 |
| Wewoka Refining Co., Wewoka | 2,000 | 300 | 500 |
| White Oak Refining Co., Allen | 8,000 | 5,000 | 3,000 |
| Wilcox Oil & Gas Co., Bristow | 5,000 | 2,500 | 2,500 |
| Wirt Franklin Petroleum Corp., Ardmore | 4,000 | 2,500 | 2,500 |
| Yale Oil Corp., Yale | 1,000 | (*) | 1,000 |
| Total | 330,300 | 182,100 | 192,800 |

### REFINERY OPERATIONS IN KANSAS

(Plants which have been in operation during the past year)

| Company and location— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Barnsdall Refineries, Inc., Wichita | 4,000 | 1,700 | 1,200 |
| Derby Oil Co., Wichita | 7,500 | 4,500 | 5,000 |
| Eldorado Refining Co., Eldorado | 3,500 | 2,200 | 2,500 |
| Golden Rule Refining Co., Wichita | 1,500 | 800 | 800 |
| Kanotex Refining Co., Arkansas City | 10,000 | 5,000 | 5,000 |
| National Refining Co., Coffeyville | 6,500 | 5,000 | 5,000 |
| Peerless Oil Refining Co., Chanute | 3,000 | (*) | (*) |
| Phillips Petroleum Co., Kansas City | 6,000 | 5,000 | 5,000 |
| Shell Petroleum Corp., Arkansas City | 22,000 | 14,000 | 14,000 |
| Sinclair Refining Co., Coffeyville | 12,000 | 9,000 | 9,000 |
| Sinclair Refining Co., Argentine | 9,500 | 5,000 | 5,000 |
| Skelly Oil Co., Eldorado | 23,000 | 13,500 | 13,000 |
| Standard Oil Co. of Kansas, Neodesha | 20,000 | 8,000 | 8,000 |
| Vickers Petroleum Co., Potwin | 3,500 | 1,750 | 2,000 |
| White Eagle Oil Corp., Augusta | 10,000 | 7,500 | 7,000 |
| Total | 142,000 | 82,950 | 82,500 |

### REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year)

| Company and location— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Bayou State Refining Co., Hosston | 750 | 600 | 550 |
| Crystal Oil Refining Corp., Shreveport | 14,000 | (*) | (*) |
| Dixie Oil Co., Superior | 3,500 | 3,100 | 3,200 |
| Louisiana Oil Refining Co., Shreveport, Bossier | 24,000 | 12,800 | 15,000 |
| Shreveport-El Dorado Pipe Line Co., Shreveport | 10,000 | 7,100 | 7,700 |
| The Texas Company, Shreveport | 7,000 | (*) | 5,000 |
| Total | 59,250 | 23,600 | 31,000 |

*Shut down.

(Continued on Page 190)

# Big Gas Pipe Line for South Louisiana

## United Gas Pipe Line Corp. Lets Contracts for System 383 Miles Long Which Will Serve Numerous Cities and Towns

By Neil Williams

HOUSTON, Tex., Dec. 8.—As another long stride in the rapid expansion of the natural gas transportation and distribution business, the United Pipe Line Corp. of this city has let contracts and will start actual work within two weeks on an additional major system which will extend east and west across southern Louisiana, serving a large territory as yet unreached by gas except for a few small local installations.

The new project calls for the laying of 383½ miles of pipe, including the main trunk line from Kirbyville in Jasper County, southeast Texas, to Franklin, in St. Mary Parish, south central Louisiana, a distance of 158 miles, and 225½ miles of lateral lines. The sizes of pipe range from 14-inch down to 2-inch.

Surveys for the project were made several months ago and contracts for laying the line have been held up pending the obtaining of gas distribution franchises in a sufficient number of towns and cities scattered over southwestern and south central Louisiana. To date more than 40 localities have granted franchises, representing the more important cities of the territory taken in.

Construction contracts have been awarded the F. C. Youmans Co. and the Sexton Corp. of Texas, which companies have divided various sections of the project and will rush completion of the work so that distribution of gas can be started before the winter is over. The United Pipe Line Corp., which is to operate the line, is a unit of the United Gas System, an Electric Bond & Share holding, which now has major transportation systems extending over Texas, North Louisiana, to St. Louis, Mo., and to Atlanta, Ga., all served out of gas reserves of southwest Texas and those of Monroe, Richland and other North Louisiana fields.

### Connects with Magnolia

The western terminus of the new project at a point near Kirbyville, Tex., will tie into the 18-inch trunk line of the Magnolia Gas Co., now a part of the United Gas system, which extends from northeast Texas southward across eastern Texas to Beaumont and Port Arthur. That line also connects with the several other large trunk lines of the United Gas system, including the Dixie Gulf Gas Co. line from northeast Texas and North Louisiana to Port Arthur and Houston, and that of the Houston Gulf Gas Co. from Southwest Texas to Houston. These connections make the new Louisiana project a part of a gigantic system, fed by numerous large gas-producing districts.

The main line of the Louisiana project to Franklin will serve directly 10 cities, for which franchises already have been granted. These will be DeQuincy, Crowley, Welsh, Jennings, Broussard, Youngsville, St. Martinsville, New Iberia, Jeanerette and Franklin. This line will consist of 46 miles of 14-inch pipe, 16 miles of 12-inch, 53 miles of 10-inch, 30 miles of 8-inch, and 13 miles of 6-inch.

### Lateral Lines

From this main line there will be six lateral lines as shown on an accompanying map. These include the DeRidder, Vinton, Marksville, Washington, Breaux Bridge and Abbeyville lines, which will serve the cities and towns along their respective rights of way.

The DeRidder lateral will consist of 29½ miles of 3-inch, and 8 miles of 2-inch pipe, serving Merryville and DeRidder.

The Vinton line, consisting of 12 miles of 6-inch, 9 miles of 4-inch, and 13 miles of 3-inch pipe, will touch Lake Charles, Westlake, Sulphur, Vinton and consumers in the Edgerly and Lockport oil fields.

The Marksville line, 69 miles of 6-inch, 17 miles of 4-inch, 29 miles of 3-inch, and 7 miles of 2-inch pipe, will take in Kinder, Elton, Oakdale, Elizabeth, Chaneyville, LeCompte, Bunke, Cottonport, Mansura, Hessemer and Marksville.

The lateral to Washington, serving in addition to that city Rayne, Church Point, Eunice, Opelousas, will require 13½ miles of 6-inch, 22½ miles of 4-inch, and 5 miles of 3-inch pipe. The Breaux Bridge line, 5 miles of 6-inch, and 8 miles of 3-inch pipe, will supply Lafayette and Breaux Bridge; and to Abbeyville will be laid 4 miles of 6-inch, 6 miles of 4-inch and 8 miles of 2-inch pipe to tap Milton, Erath and Abbeyville.

Two important rivers, the Sabine and Calcasieu, must be crossed by the Louisiana trunk line. At each of these multiple lines will be provided. Across the Sabine, which is the Texas-Louisiana boundary, three 10-inch lines will be strung, while across the Calcasieu River there will be three 8-inch lines. The line has been routed to avoid as much as possible of the swamp and marsh lands which exist over Coastal Louisiana yet some of this country must be traversed which will create a number of engineering difficulties.

### Consolidating Units

As a part of the program of the United Gas System to consolidate the operations of as many as possible of its numerous affiliated and subsidiary companies under the two main operating companies, the United Production Corp. and the United Pipe Line Corp., recently organized, a number of natural gas producing and transmission companies in Louisiana and Mississippi were absorbed the past week by the two units of the United Gas System.

These companies included the Ouachita Natural Gas Co., Industrial Gas Co., the Palmer Corp., and Mississippi properties which were taken over by the United Production Corp., and Excelsior Pipe Line Co. and Louisiana Gas Co., which have been added to the United Pipe Line Corp.

This action necessitates very little change in operation and personnel as all these companies have been more or less closely associated in executive control, and the dissolution is more one of loss of individual designation of these companies which became affiliated the past year in the organization of the United Gas System, following the merger of the Moody-Seagraves and the Electric Bond & Shares interests.

N. C. McGowen, vice president of the United Gas Corp., the holding company, and until now president of each of the individual companies, continues as president of both the United Production Corp. and the United Pipe Line Corp. R. H. Hargrove, vice president of the producing companies, continues as vice president in charge of the United Production Corp., while H. L. Dickerson, vice pres-

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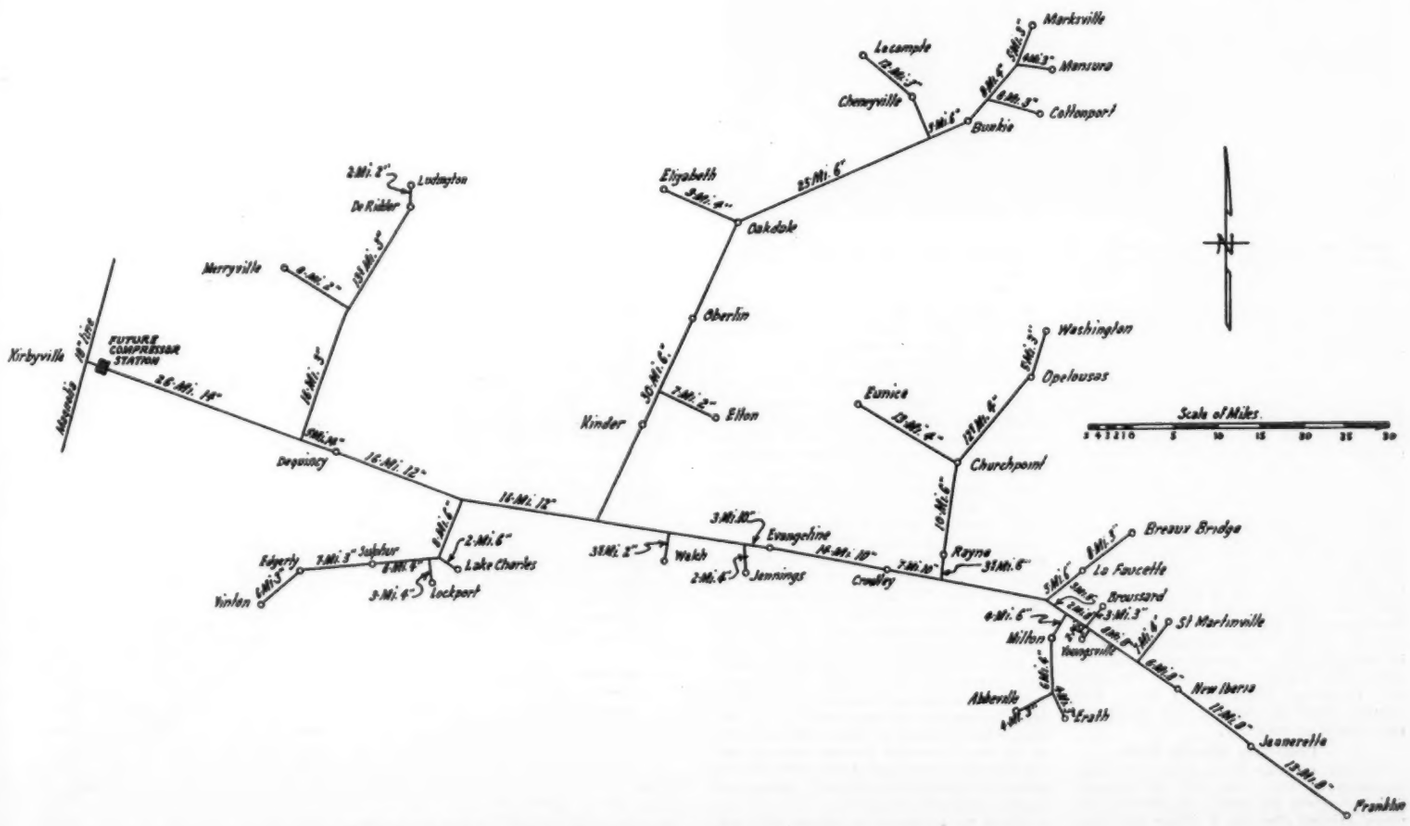



*Map of new gas transmission project across southern Louisiana to be started within two weeks.*

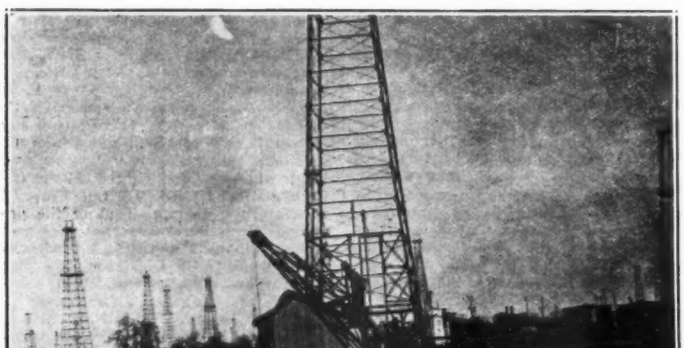
# River Locations Present New Problems

## Protection of Derrick Built in Middle of North Canadian River in Oklahoma City Field Accomplished by "Battleship" Barrier

By L. G. E. Bignell
*Petroleum Engineering Editor*

When a production man refers to having sand troubles at one of his leases it is usual to assume he has in mind difficulties encountered in the production of his oil because of loose sand coming from the producing horizon. But in the NW of Section 2-11n-3w, Oklahoma City Field, this might be only partly true for he might be having a lot of trouble with sand at the surface, for this portion of the Oklahoma City Pool is located in the channel of the North Canadian River and surface sand bodies are encountered over the major part of it.

This section of the field lies adjacent to and partly in the limits of Oklahoma City and it has been stated that there is an average of one well to every 3.64 acres, which in itself is making problems for the production department as with this limited space the location of the derrick and finding room for slush pits, storage tanks and other surface equipment is difficult.



*Building protection in front of Phillips Petroleum Co.'s No. 1 Lybrand well, located in North Canadian River, Oklahoma City Pool, to deflect debris from derrick foundation during high water.*

The river channel is quite broad in this area and practically all of the surface is covered with loose sand deposited in times past and converted into quicksand when the water level in the river is raised during the wet season. Foundations for derricks and other equipment are therefore difficult to maintain and many ingenuous methods have been devised to care for this situation.

In an article in the July 10, 1930, issue of The Oil and Gas Journal, headed, "Oklahoma City's Drilling Peak Passed," there is a description of the type foundation and cellar devised by the Phillips Petroleum Co. for this river bottom area and the value of this method was clearly demonstrated on several occasions, but none more forcibly than when the Morgan Petroleum Co.'s No. 1 Stout was running wild in October and endangering adjoining property.

### Protecting Shut-in Wells

Because oil was being blown in every direction by the wind and all derricks and equipment for some considerable distance around the No. 1 Stout well was soaked with it there was need for protecting shut-in wells against possible fires and on the Phillips Petroleum Co. properties where the cemented cellars were used this protection was given by filling the cellars with water.

The three master gates on these wells are all located in the cellar and as this cellar is water tight it was only a short time before lines were laid to the well and the cellars filled with water up to the ground level and this body of water completely covered all valves that controlled the flow of oil and gas from the well.

Each of these valves is equipped with distant control devices and even with the cellars flooded it was possible to open or close them if it had been necessary. On top of the flow string there is mounted some type of cushion head through which the oil, gas and sand flows to the oil and gas separators, but with the master gates closed and these upper fittings and vessels drained of their oil the danger of fire at the well was reduced to a minimum and if fire had started it is probable that it would only have consumed the oil soaked flooring and such other wood as was used around the base of the rig and the damage to the well or the derrick would have been very slight.

Contrasted with this were other wells where cellars had been dug in the quicksand down to the water level and the sides cemented but with the bottoms left open and the cellar therefore not water tight. To protect such wells they were covered with sand as high above the derrick floor as possible, and the cellars also filled with sand. The master gates, or christmas trees, were in many cases above the derrick floor and therefore exposed to any fire that might have started with the possibility that the heat might have caused the master gates to leak and the well itself catch on fire.

After the danger was passed the Phillips Petroleum Co.'s wells were again put in their normal condition for producing by pumping the water out of the cellars, whereas most of those wells protected by sand are still covered with it and considerable time and work will be required to clear this material away and again expose all fittings.

While no comparative figures are available it has been generally assumed that the type of cellars used at the Phillips Petroleum Co.'s wells in the river bottom area cost much more than those used by other companies, but it has been contended by engineers who should know the facts that the Phillips' type cellars did not cost any more, all things considered, than did the regular types.

Subsequent developments have proven in any event that the Phillips Petroleum Co. type cellars and foundations were fully justified for upon completion the wells in this area have been of large capacity, with great quantities of gas and much sand. Because of the fact that they are all within that zone of intensive activity where wells are so closely spaced that fire would spread rapidly and might be started from any slight lack of precaution on the part of neighboring operators it seems that too great care cannot be taken at any well.

It has since developed that wells acquired by the Phillips Petroleum Co. when the consolidation with the Independent Oil & Gas Co. was completed are located in the river bed or on the river bank and will be subjected later to the actions of the high water following the usual late winter and early spring rains.

One of these wells, No. 1 Lybrand, is actually drilled in the center of the river and such water as now flows in this stream surrounds it and to reach the rig there has been built a bridge from the river bank.

As this well is rated at 48,000 bbls. daily capacity, with a large volume of gas, all under high pressure it presents a problem for the engineers to protect the derrick foundation against the action of flood water, which would carry with it much debris that might lodge against the flat face on the upstream side of the foundation.

In such an event the pressure exerted against the derrick base might shift it down stream and cause leak in the flow string from the well, in which event there would be a wild well in the middle of a stream under flood conditions, something that is not pleasant to contemplate and which should be avoided if possible.

### Wells Protected With Dams

Faced with such a problem the engineers for the Phillips Petroleum Co. decided to build a structure ahead of the derrick foundation that would be pointed upstream and split the flood stream and prevent packing of debris and to handle this work have employed E. M. Carter, hydraulic engineer, who has been putting in their cement cellars and digging water wells for them. The Southwestern Dredging Co. of Oklahoma City is also assisting in this work driving piles and will later fill the enclosure with sand.

The work is now under way as the river is at its low stage and the first operation was to drive a number of 60-foot piles made out of spliced 12½-inch casing into the bed rock that is about 40 feet below the present river level.

These piles penetrate the rock about 8 feet and pockets are made by blasting and the piles lowered into them, after the pockets are filled with cement which is poured through the inside of the 12½-inch casing. This makes a good anchor

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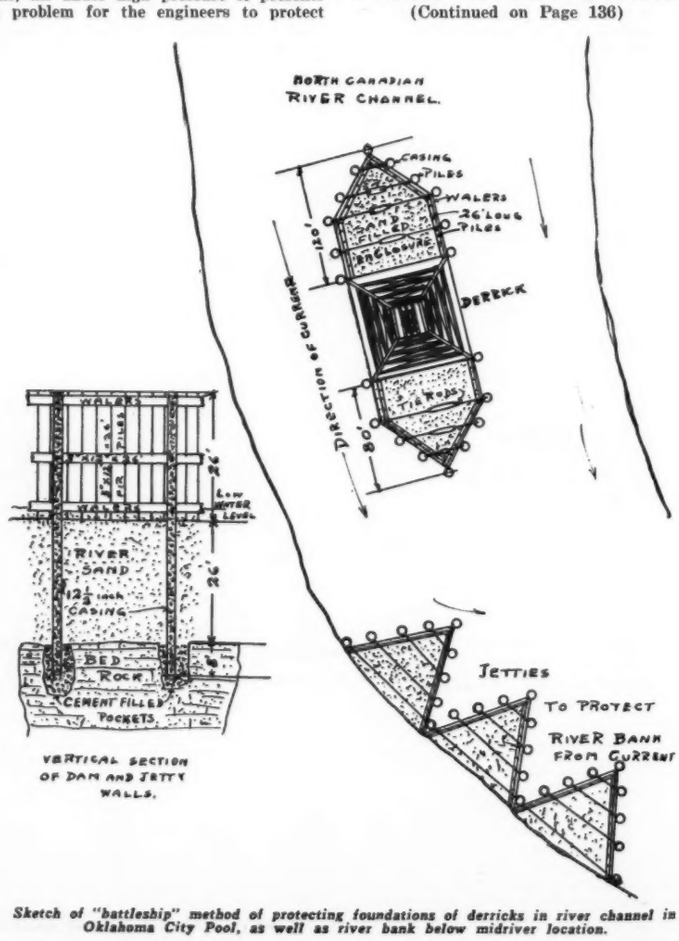



*Sketch of "battleship" method of protecting foundations of derricks in river channel in Oklahoma City Pool, as well as river bank below midriver location.*

# Individual Operator Analyzes Situation

## Roy M. Johnson of Ardmore Undertakes to Call a Spade a Spade and a Shovel a Shovel. California and Mid-Continent Price Structures Contrasted

By Roy M. Johnson

Because of the frankness of what I am about to say, I would not be surprised if the editor would much prefer that I had remained silent. But these thoughts have been surging and boiling in my mind, until, like the old-fashioned preacher, I have had finally to listen to the "call."

However, to avoid giving offense, where certainly none is intended, I shall try to tread on as few toes and wound as few feelings as possible. And this, in spite of the fact that what the oil industry has sadly needed for some time has been the calling, in no uncertain terms, a spade a spade and a shovel a shovel.

For the week ending August 24, 1929, the daily average crude oil production in the United States was 2,975,435 bbls. On the same date oil of 36 gravity in the Mid-Continent Field was bringing the producer $1.45 per barrel. For the week ending November 22, 1930, the crude oil production of the United States was 2,270,130 bbls. On the same date, Mid-Continent price of 36 gravity oil was 95 cents per barrel, or 50 cents a barrel less than when production was 705,000 bbls. greater.

### Comparison Astounding

On August 29, 1929, the posted price of Santa Fe Springs crude of 36 gravity was $1.50 per barrel. For the week ending November 22, 1930, the posted price of the same crude was $1.63 per barrel. We realize that California crude has slightly higher gasoline content than Mid-Continent oil of the same gravity, but in spite of this fact the comparative figures are astounding. Thus we see that in August a year ago 36 gravity oil sold for 5 cents a barrel more than Mid-Continent oil of the same gravity; while today the same oil in California sells for 68 cents per barrel more than like oil here, and, while Mid-Continent crude was declining 50 cents a barrel, Santa Fe Springs crude increased 13 cents a barrel.

During the 15 months that have elapsed since the peak in crude oil production in 1929, the production of the United States has dropped 705,000 bbls. a day, due largely to the various conservation and proration programs now in force in the various flush producing states.

In August, 1929, several hundred thousand barrels of crude a day went into storage. Today the withdrawal of total petroleum stocks amounts to several million barrels monthly, amounting to 3,600,000 bbls. for the month of October. The producer would naturally expect to be rewarded, at least to the extent of receiving as much for his crude as he did 15 months earlier when the total crude production was 30 per cent greater than it is today. The California producer has thus been rewarded, and in some instances is even receiving a higher price for crude of like gravity than he did in August, 1929. In the Mid-Continent Field, however, he is receiving 50 cents a barrel less than at the same time last year.

### Might Have Averted Cut

The latest crude cut east of the Rocky Mountains was started in Texas, and was blamed upon a general decline in refinery prices, which, it has been generally charged, was due to about 17,000 bbls. of distress oil being sold under the market by North Texas producers. It is the consensus of opinion, that if this small amount of distress oil had been given relief, the owners of these properties would not have been forced to seek the best market they could to save their properties. The failure to take care of this small amount of distress oil has therefore resulted in lowering the average price of crude oil 25 cents a barrel on the nearly 1,700,000 bbls. now being produced east of California. We distinctly remember early last year when Texas producers were being urged to reduce production to consumptive needs, that it was repeatedly said that it was "better to produce less oil for more money than more oil for less money." Instead, they are now producing decidedly less oil for a substantially less price.

We fail to see why the present marketing authorities are so "goosey" over the comparatively small amount of crude moving to independent refineries under posted prices. Almost simultaneously with the recent crude cut in Texas, certain refinery interests immediately reduced their crude quotations until their new prices were again substantially below the newly posted prices. Here in Oklahoma the Champlin Refining Co. has recently posted a price scale substantially under the present posted price. It is an open secret that this refining interest would like to see proration done away with, and they realize that the lower the price goes the quicker their hopes will be realized.

Several years ago, when the shoe was on the other foot, and the Mid-Continent and Texas independent refineries were paying substantial premiums over the market, the crude price makers were not so sensitive to these premiums that they immediately tried to overtake the higher price offered by independent refiners. In 1920 Mid-Continent crude brought $3.50 a barrel while Champlin Refining Co. was paying $5 per barrel. Yet no strokes of apoplexy were thrown by the leading price makers. As has been oftentimes argued during the recent period of price cutting, lowering the crude costs to the refineries cannot help but lower the price of the refining structure, and raising the crude costs cannot but have a bullish effect on same.

On the other side of the picture, in

(Continued on Page 134)

### OPENED THE HEALDTON FIELD

**Roy M. Johnson of Ardmore, Okla., is one of the best known oil men in the Mid-Continent Field. He went to Ardmore in 1907 and started a Republican newspaper in rock-ribbed Democratic Carter County, which shows he was a man of nerve. He conceived the idea that there was oil underlying Carter County and in the face of all sorts of discouragement he set about to prove it. Involving himself in debt up to his neck, he accumulated a block of acreage and in the course of his campaign to get someone else interested in the project he encountered Wirt Franklin, who had also entered the business of collecting leases. Together they interested S. A. Apple and Ed Galt and the four made a deal with J. M. Critchlow to drill the well that opened the Healdton Field in 1913. Mr. Johnson became one of Oklahoma's rich men, but he did not retire from the oil business, although he did quit struggling journalism. He has continued to operate, confining most of his activities to southern counties in Oklahoma. He is a student of oil affairs and a frequent contributor to trade journals on subjects pertaining to the petroleum industry.**

# Correlation of Proration Is Next Step

## Resolutions Adopted by Mid-Continent Oil and Gas Association. Tariff Legislation Approved. Election of Officers

By L. E. Bredberg

FORT WORTH, Tex., Dec. 6.—"It is time for the oil producers to get in a huddle," said J. Edgar Pew, vice president of the Sun Oil Co., Philadelphia, at a meeting of the board of directors of the General Mid-Continent Oil and Gas Association at the Adolphus Hotel Dallas, Tex., Friday, and Mr. Pew no doubt expressed the sentiments of all those attending the meeting when he stated that the waste of natural gas and oil should be prevented in every field, and that the producers should be allowed a living wage for their crude oil and enough to pay for producing their properties.

Such a price for oil, Mr. Pew said, would greatly help to better conditions in the industry. "If we ever have a chance to do something, it is right now. Most meetings go so far, then stop, accomplishing little but it is now time for the producers to get together to avoid unemployment and bring down overproduction, starting in the various producing districts, co-operating between the various producing states, and bringing all producers together to work out the problems which are confronting the industry."

Members of the association virtually did what Mr. Pew suggested at the meeting and got in a "huddle" right there, with the result of several committees being appointed, several resolutions being drawn up and adopted, and correlation of proration in the entire Mid-Continent discussed, advocated and accepted wholeheartedly as the one way to remedy existing conditions.

### Advisory Committee Named

To start the ball rolling in correlation the following advisory committee was appointed to assist the state proration committees which have been functioning for some time: E. B. Reeser, Tulsa, president of the American Petroleum Institute; Robert R. Penn, chairman of the central proration committee of Texas; Alvin Richards, Tulsa, chairman of the state proration committee of Oklahoma; D. Scott, Wichita, chairman of the state proration committee of Kansas; David Donoghue, technical advisor of the Texas committee; Ray M. Collins, Oklahoma State umpire; and Tom J. Johnson, Wichita, Kansas state proration umpire. In addition, this committee will have technical subcommittees to ascertain and disseminate facts on proration and related subjects. C. B. Mapes, Tulsa, economist and engineer for the general association; David Donoghue and Floyd Pickrell, Wichita, will act as a nucleus for the correlation committee. Other members will be named later.

### Resolution on Proration

The first resolution adopted follows:

"Whereas, it is an essential principle of proration that the allowable production within any given oil pool shall not exceed the actual ascertained market demand for oil therefrom as determined by the Conservation Agency of the state within which said pool is located; and,

"Whereas, it is equally essential that the takings of oil from different properties within a pool shall be on a ratable basis, considering the total allowable production of said pool; and,

"Whereas, in many pools and districts in the Mid-Continent area there have existed for some time and now exist situations in which producers in those pools are without outlets in any amount, or have outlets less than the allowable production for the properties involved and less than the actual outlets of their neighbors, in consequence of which such properties are being drained and the gas energy of the pool dissipated with resulting underground waste and producers are of necessity disposing of oil in a manner that markedly contributes to still further general demoralization of the industry, which because of this, and other reasons, now threaten to become further demoralized;

"Be it resolved: That this association endorses the principle that in applying proration the allowable production in a given pool shall not exceed the ascertained market demand for oil therefrom, determined as above set forth, and the principle of ratable sale and production of oil within the several pools as above set forth, and this association hereby calls upon all producers to accept these principles and to co-operate fully with all state conservation agencies, the pipe line carriers, the purchasers, and all committees of the industry in making these principles effective.

"That this association hereby calls upon all pipe line carriers and purchasers of oil in co-operation with general proration committees and the local advisory committees of the producers, the umpires and other representatives of state conservation agencies in the various districts of the Mid-Continent area, and in co-operation with each other, to arrange their connections and takings as far as possible so as to assure to every producer participation in the market outlet to the extent of his allowable production by the application of the above principles; to make all reasonable extension of gathering facilities; to effect loans, leases, sales and exchanges of pipe line and gathering facilities to and with other pipe line carriers and where possible exchange oil in line with authorization made or that may be made by the conservation agencies of the states involved, and in general do all reasonable acts in co-operation with all agencies in assuring connections to all producers and in preventing the present inequities existing in the takings of oil,

(Continued on Page 135)

# Petroleum and the Anti-Trust Laws

## Herbert R. Macmillan Calls Attention to the Need of Modifications That Will Assure a General Fair Deal

By Herbert R. Macmillan*
President California Oil & Gas Association

Overproduction is the plague which is affecting industry—overproduction of raw materials and the finished product. Within the category must be listed agricultural products, coal, copper, lumber, petroleum and many other articles.

The spectacular speculative purchases of securities, resulting in heretofore unheard of peak prices and culminating finally in the recent disastrous collapse of the stock market, was a form of overproduction.

The hoarding of money in the banks, resulting in the stupendous idle deposits now existing, is still another form of overproduction.

The climax of the harmful results flowing from overproduction is found in those industries which draw upon the irreplaceable natural resources of the country. The petroleum industry must take its place in this class.

Indispensable under our present standards, in peace times as well as in war periods, petroleum is a natural resource which should demand such state and national protective measures as will reduce wasteful methods to a minimum.

*Delivered at a meeting of the western division of the United States Chamber of Commerce at Portland, Ore., on December 8, 1930.

### Conservation

As will be hereafter pointed out, exemptions from, and special privileges under, the Federal antitrust laws, have been granted to various classes. Until a suitable substitute for gasoline as a propelling power, and refined oil as a lubricant, can be found, there exist stronger reasons for protecting the petroleum industry than obtain with respect to any of the classes above referred to.

Recognition of this fact, I think, is apparent from the statement made by President Coolidge, when, in December, 1924, he appointed the Federal Oil Conservation Board. He stated that the future of the oil industry might be left to the industry itself and to the law of supply and demand "but for the potent fact that the oil industry's welfare is so intimately linked with the industrial prosperity and safety of the whole people, that government and business can well join forces to work out this program of practical conservation."

During that year (1924), the production of oil in the United States amounted to 713,940,000 bbls. Five years later, or during the year 1929, it reached in round figures 1,006,000,000 bbls.

Conservation with respect to petroleum has been agitated from the time of the appointment of the Federal Oil Conservation Board to the present. It was not, however, until February, 1929, that any concerted action was taken to effect nation wide oil conservation.

At that time the directors of the American Petroleum Institute appointed a committee to ascertain the facts respecting world production and consumption. That committee met in open sessions with a representative of the Federal Oil Conservation Board and, in March, recommended to the directors of the American Petroleum Institute that, commencing April 1, the daily production of oil in the United States should not exceed, for the remainder of the year, the daily average production during 1928. The recommendation was unanimously adopted by the directors of the Institute. All was well. But that condition did not long prevail. In answer to an inquiry of the Secretary of the Interior, who was chairman of the Federal Oil Conservation Board, as to the effect of the antitrust laws respecting the proposed curtailment, the Attorney General replied "that no action taken by the board would have the effect of relieving parties to such an agreement from the operation of the antitrust laws of the United States."

The impression was left among oil men that an attempt to curtail production under any such agreement as was proposed, would result in prosecution under the Sherman act. For a time consternation reigned, but, at last, it was determined that the producers of each state should act without any attempt at agreement with the producers of any other state or states. In other words, the curtailment agreements were, as nearly as possible, to be made intra-state and not interstate transactions.

But since the concerted action in curtailing production must necessarily have

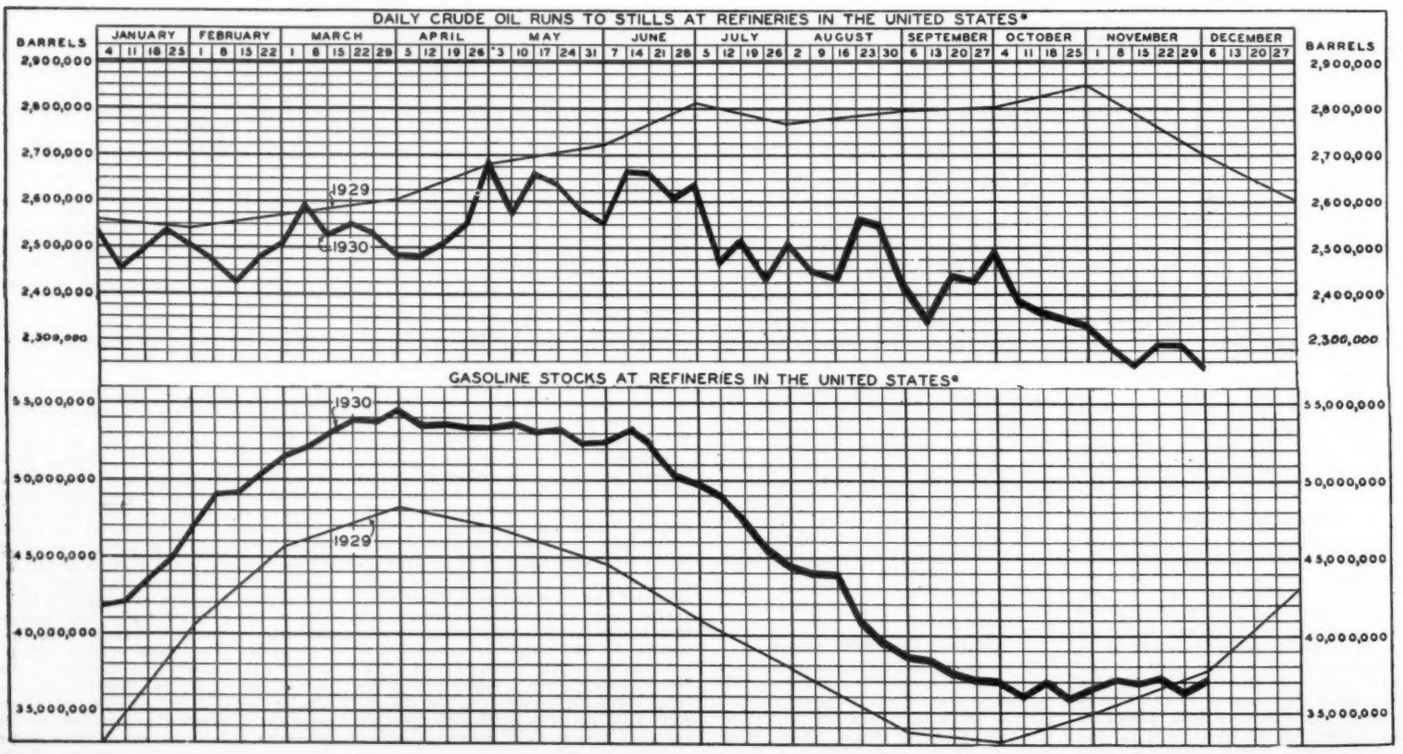
(Continued on Page 137)

## AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending December 6.

| | Week Ending December 6 | | | | Week ending November 29 | | | | Week ending January 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| East Coast | 100.0 | 446,000 | 5,427,000 | 10,852,000 | 100.0 | 453,100 | 5,563,000 | 11,182,000 | 100.0 | 454,857 | 5,998,000 | 7,431,000 |
| Appalachian | 93.8 | 82,600 | 829,000 | 1,035,000 | 92.8 | 74,300 | 778,000 | 1,025,000 | 91.6 | 75,571 | 1,282,000 | 805,000 |
| Indiana, Illinois, Kentucky | 97.5 | 252,300 | 4,193,000 | 3,868,000 | 97.5 | 260,600 | 4,255,000 | 3,978,000 | 98.6 | 289,800 | 5,483,000 | 3,505,000 |
| Oklahoma, Kansas, Missouri | 89.4 | 237,400 | 2,413,000 | 4,538,000 | 89.4 | 250,900 | 2,325,000 | 4,582,000 | 87.7 | 263,428 | 3,804,000 | 3,277,000 |
| Texas | 91.9 | 463,800 | 6,896,000 | 10,775,000 | 91.9 | 478,300 | 6,292,000 | 11,017,000 | 90.7 | 539,857 | 6,590,000 | 13,757,000 |
| Louisiana and Arkansas | 98.3 | 145,900 | 1,201,000 | 2,224,000 | 98.3 | 146,700 | 1,295,000 | 2,261,000 | 96.8 | 160,000 | 2,161,000 | 4,499,000 |
| Rocky Mountain | 93.1 | 39,700 | 1,548,000 | 1,026,000 | 93.1 | 43,300 | 1,517,000 | 1,029,000 | 93.3 | 41,614 | 2,273,000 | 973,000 |
| California | 98.8 | 519,600 | 15,235,000 | 104,546,000 | 98.8 | 539,100 | 15,262,000 | 103,793,000 | 99.3 | 642,857 | 14,826,000 | 109,776,000 |
| Total United States | 95.7 | 2,187,300 | 37,742,000 | 138,864,000 | 95.7 | 2,246,300 | 37,287,000 | 138,868,000 | 95 4 | 2,468,285 | 42,217,000 | 144,017,000 |
| Texas Gulf Coast | 100.0 | 353,300 | 5,663,000 | 8,101,000 | 100.0 | 354,300 | 5,030,000 | 8,290,000 | 100 0 | 429,585 | 5,579,000 | 10,792,000 |
| Louisiana Gulf Coast | 100.0 | 108,700 | 935,000 | 1,253,000 | 100.0 | 96,300 | 1,011,000 | 1,291,000 | 100 0 | 108,514 | 1,877,000 | 3,818,000 |

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.




*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.

# Units Now Under Construction ALL OVER THE WORLD

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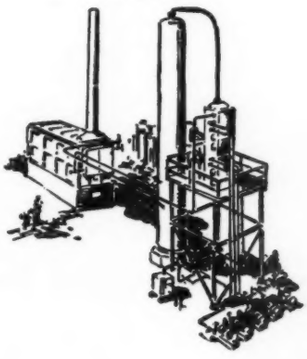
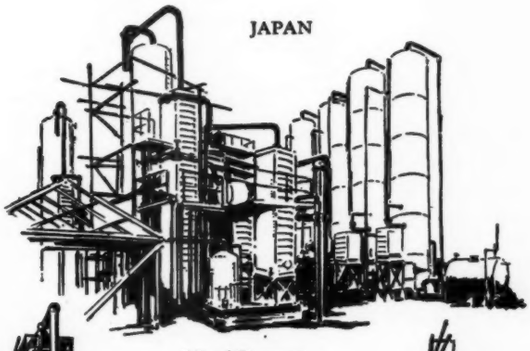
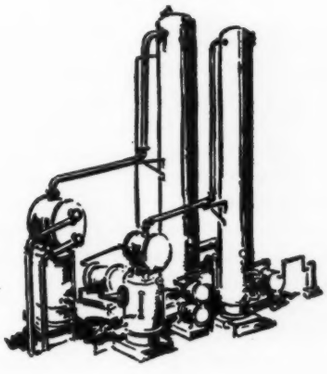


JAPAN



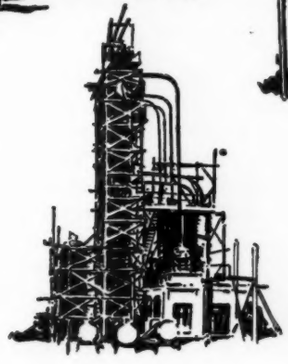
*Isle of Formosa*

POLAND



*Gidinia*

FRANCE



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## MODERNIZING THE ANTITRUST LAW

It is beginning to look as though something might be done about our antiquated antitrust laws which have been so largely responsible for the overproduction that brought the depression on us.

The oil industry would never have got into the present "jam" if it had not been deterred so long from remedial action, as the first Federal Oil Conservation Board said six years ago, by "the uncertainty whether the laws served as a barrier to co-operative action."

The Coolidge Commission at that time recommended that "this doubt should be removed by appropriate legislation" but Congress took no notice of it.

Happily the issue has now been placed squarely before Congress by President Hoover, who, when Secretary of Commerce in 1926, said to The Oil and Gas Journal during a visit to Tulsa:

"An amendment to the Sherman Act permitting oil companies to curtail drilling activities in small, localized fields, which may threaten to upset the condition of the entire country, seems to be advisable."

In his message last week he renewed the suggestion directly to Congress by recommending an inquiry into the economic working of the antitrust laws.

"The interpretation of these laws by the courts, the changes in business, especially in the economic effects upon those enterprises closely related to the use of the natural resources of the country, make such an inquiry advisable."

"The producers of these materials," he added, "assert that certain unfortunate results of wasteful and destructive use of these natural resources, together with a destructive competition which impoverishes both operator and worker, cannot be remedied because of the prohibitive interpretation of the antitrust laws."

Following the president's message a resolution was introduced in the Senate by Senator King of Utah calling for a thorough investigation by the Judiciary Committee of the Senate for the purpose of determining whether it "is desirable or necessary to strengthen and extend the provisions of the antitrust laws or to modify any of the provisions of such laws."

No one, of course, can guess what the outcome, if any, of a Congressional inquiry may be, but this inquiry offers an opportunity for the oil industry and all other business which has found the antitrust laws a hindrance rather than a help to get their case before Congress and the people.

President Hoover says "I do not favor a repeal of the Sherman law. The prevention of monopolies is of the most vital public importance."

So far as the antitrust laws serve as a protection against oppression by monopolies they will undoubtedly stand, but they can do this without putting all business in a straightjacket.

It should not be a matter of applying an unyielding theory to totally different cases but the effect on the public interest; in other words, the application of the rule of reason.

The Sherman Act was framed under the business conditions of 40 years ago when no one imagined the conditions of today. To the lawmakers and public of 1890, most of them, mere bigness meant monopoly. Yet the largest aggregations of that day would appear trivial compared to any one of scores of organizations today.

Nation-wide distribution, world-wide competition, as we now know it, had scarcely begun. Industry and trade were largely local and sectional and that colored the general viewpoint.

Men were bent on preventing what could not be stopped but might have been guided. The ramifications of modern industry and business would have seemed utterly impossible to the public that applauded the enactment of the Sherman Act.

It has been in effect 40 years but who imagines it has fulfilled the ideas of those who passed it? If it had, the country might still be back in the horse and buggy age.

Fortunately the interpretations have been broadened from time to time as the country expanded, but enough of the 40-year-old viewpoint survives to put modern business in a dilemma in trying to do today's work under the conditions of 1890.

"Competition," President Hoover says, "is not only the basis of protection to the consumer but is the incentive to progress." But he wisely recognizes that there is destructive competition and adequate competition.

There is a competition that can be the life of trade and there is a competition that proves the death of business.

The uphill struggle which the advocates of conservation have been making for the past five years would not have been so long or so costly to the industry had the mass of producers and refiners not been afraid of being accused of violating the antitrust laws if they co-operated in curtailing the tide of overproduction which was overwhelming them.

While they were thus held back from taking the steps which necessity and ordinary business prudence indicated they were prolonging conditions which begot the most destructive sort of competition. Oversupply was forcing distress sales of crude and refined products at a loss to the producers and with a waste of irrecoverable gas energy and potential recovery of oil.

Hundreds of millions of barrels were added to unneeded storage entailing an unnecessary and uneconomic burden upon the industry finally reaching the stage where the expense has become prohibitive.

Thousands upon thousands of old producing wells, which have been the backbone of the industry, are being imperiled because the price of oil has dropped or is dropping below operating costs.

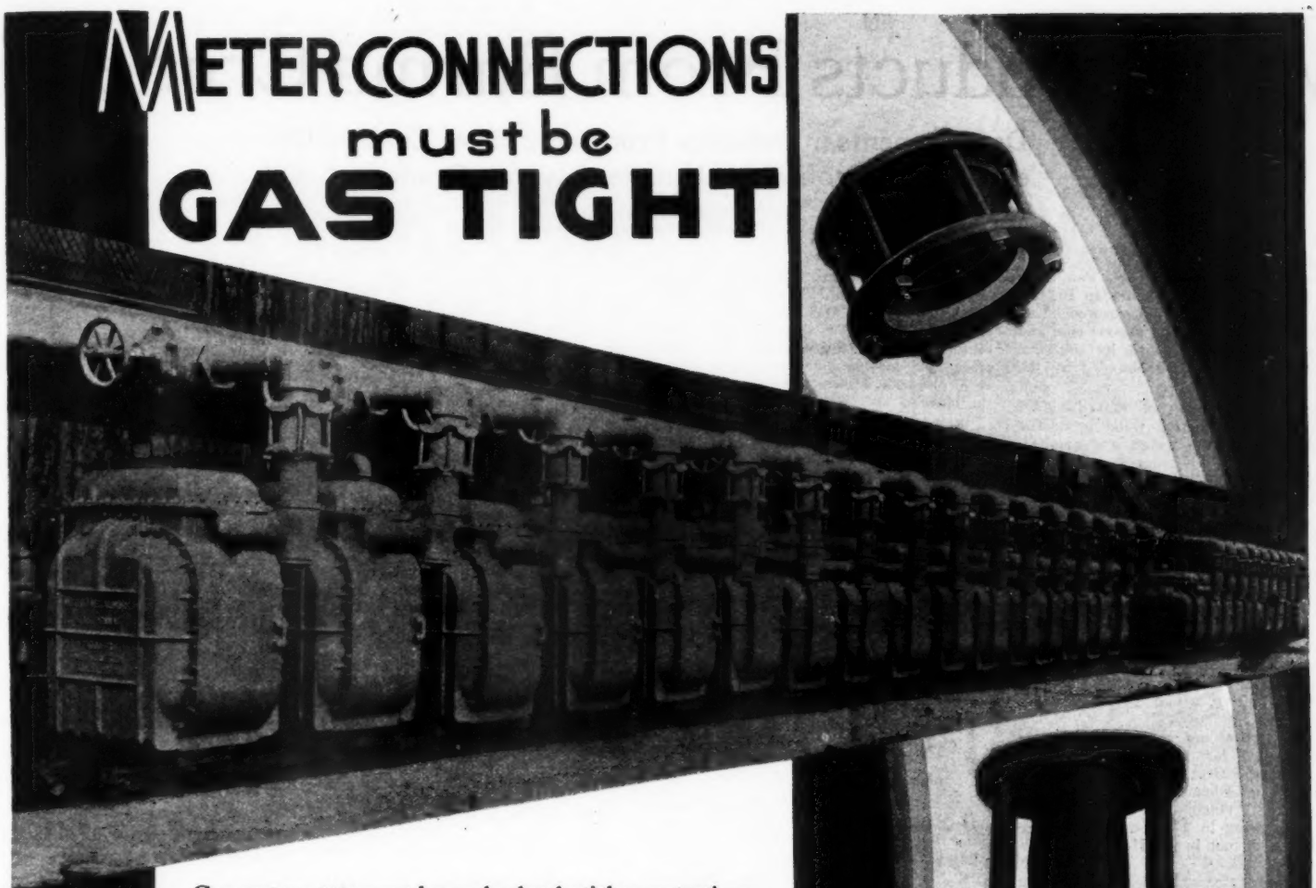
Gasoline is being sold at the refinery for less in some cases than the state collects in taxes and on every side is heard the prediction that if conditions do not improve the small producer and the small refiner will be driven out of the business.

Where then will be the adequate competition which the President believes the antitrust law was intended to preserve?

It will have been swallowed up in the destructive competition which uncertainty about the antitrust laws has forced upon business and industry in the 40-year-old notion that co-operation in business must necessarily be against the public interest.

If the inquiry by the Judiciary Committee of the Senate will differentiate between destructive and adequate competition and suggest amendment of the antitrust laws which will allow business and industry to eliminate the one and preserve the other it will be a long stride towards stabilization and the return of prosperity.

# METER CONNECTIONS must be GAS TIGHT





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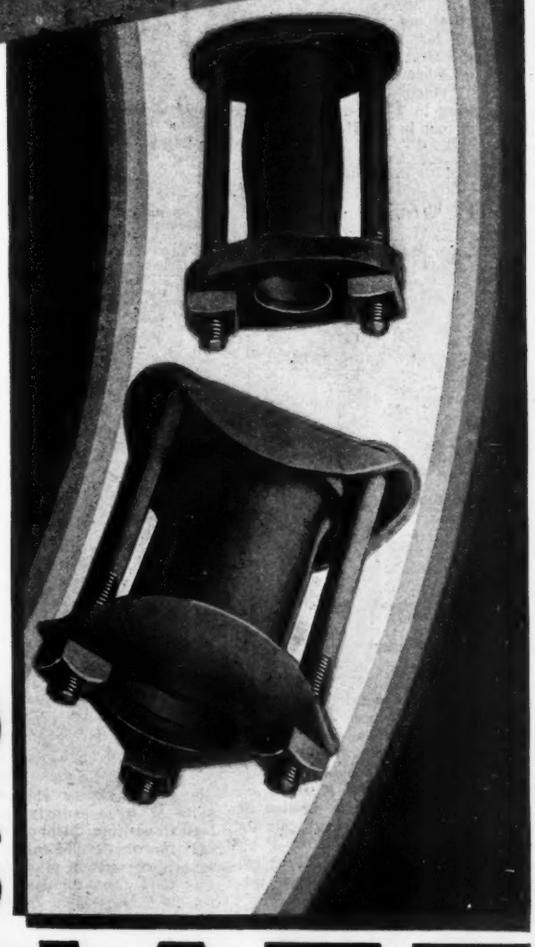

# DRESSER COUPLINGS DOMINATE

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# Many Products From Burma Crude Oils

## Developments in Refinery Processing Have Enabled Operators to Profitably Handle Several Grades of Oil

By Dr. Gustav Egloff
Universal Oil Products Co.

Sixty-two years before Colonel Drake drilled his well at Titusville, Pa., there was a flourishing oil industry in Burma. Burma is a narrow country, wedged in between Siam and China on one side and Assam on the other, with its southern and southwestern edges bounded by the Bay of Bengal.

Captain Cox[1] reported that in 1797 there were "520 active wells producing petroleum free from water, and amounting to 400,000 hogsheads annually." What relationship these hogsheads bear to barrels of 42 gallons is not clear.

In 1928, the production of the Burma fields was 239,846,129 Imperial gallons, or about 6,000,000 bbls.

For many years, all the oil wells in Burma were hand-dug and timbered, some of them reaching the depth of 400 feet. The wells were sunk in sandy clay, resting on sandstones or shales, and the oil was brought out of the wells by means of iron buckets on a rope running over a primitive windlass propelled by man-power.

In fact, it was not until 30 years after Drake drilled his historic well, or in 1889, that the first well was drilled by machinery in Burma. How the natives refined the "400,000 hogsheads" they were recovering in 1797, or where they sold it, we do not know. However, today

*Oil fields of Yenangyaung, Singu, Minbu, Palanyon and Yethaya.*

Burma oil is furnishing a large amount of valuable motor fuel, much of it by cracking.

Proration and unit development probably bothered the Burmese of long ago not at all; and the oil-gas ratio repressuring and similar modern problems gave them no concern, either. Their only trouble with gas was to keep it from asphyxiating the diggers in the bottom of the wells, in which efforts they probably were not always successful.

A traveler[2] through Burma in 1795 describes the oil field operations as follows:

"Walking to the nearest (well), we found the aperture about 4 feet square and the sides lined, as far as we could see down, with timber. The oil is drawn up in an iron pot fastened to a rope passed over a wooden cylinder which revolves on an axis supported by two upright posts.

"When the pot is filled, two men take hold of the rope by the end and run down a declivity, which is cut in the ground, to a distance equivalent to the depth of the well. Thus, when they reach the end of the track, the pot is raised to its proper elevation; the contents, water and oil together, are then discharged into a cistern and the water is afterwards drawn through a hole in the bottom.

"A fairly productive well at that time was said to contain oil up to the waist of a man. The wells were dug in beds of sandy clay resting on sandstones or shales and they varied in depth from 180 to 400 feet."

The oil beds of Burma do not occupy a definite stratigraphical horizon, but are found at certain points on all horizons, from the middle of the Eocene to the top of the Peguan. Lateral migration of the oil is important, but there are evidences that vertical migration has not occurred. Structurally, the whole of Burma is divided into four parts:

1. The eastern massif of old rocks.
2. The western fold ranges.
3. The central tertiary basin.
4. The Arakan tertiary region.

### Sources of Crude Oil

It is almost entirely in the tertiary regions that oil is found. The fields of the country follow:[3]

| | Production in Imperial gallons |
|---|---|
| 1. Yenangyaung | 137,322,012 |
| 2. Singu (structurally includes Lanywa) | 98,691,437 |
| 3-5. Yenangyat (Sabe, Yenangyat proper and Lanywa) | 1,844,946 |
| 6-8. Minbu (Minbu Town, Palanyon and Yethaya) | 5,199,950 |
| 9. Indaw. | 1,823,120 |
| 10. Yenanma | 999,500 |
| 11. Padaukbin | |

Yenangyaung is the most prolific and long-lived of the fields, lying in a position where the intermediate geological conditions necessary for oil formation persisted longest. Oil sands in this field are worked at depths to 4,000 feet.

The Singu Field is second to Yenangyaung now, and is estimated to be the premier field of Burma from the standpoint of ultimate production. The southern end of this field is the most valuable and the best producing sand is at a level of 3,000 feet.

A map of the Yenangyaung, Singu, Minbu, Palanyon and Yethaya oil fields is shown. Yenangyat and Sabe are limited fields, where initial yields were high but subsequent production for all wells dropped rapidly. In the latter field, heavy gas and troublesome emulsions are encountered.

Lanywa and Indaw are still being explored, the latter showing promise in spite of its seemingly unfavorable geological position. Minbu, also, is interesting for its geological phenomenon, in that a change of pitch in the dome in this field from 12 degrees to 6 degrees has been sufficient to hold up an oil pool.

Padaukbin and Palanyon are small fields with little production.

Yenanma is a remarkable field seeming to consist only of lenses of oil-bearing sands. Production contradicts this and oil is found near the base of the Peguan and also 2,000 to 3,000 feet lower.

A table of oil production for Burma covering the years 1888 to 1927 illustrates Burma's position in the oil world.

**PRODUCTION OF BURMA CRUDE (IN IMPERIAL GALLONS)[4]**

(Imperial gallon=1.201 U. S. gallon)

| Year— | Production |
|---|---|
| 1888 | 2,610,000 |
| 1890 | 4,400,000 |
| 1895 | 13,100,000 |
| 1900 | 36,974,288 |
| 1905 | 142,063,846 |
| 1910 | 211,507,903 |
| 1915 | 232,291,932 |
| 1919 | 293,846,129 |
| 1921 | 296,092,057 |
| 1925 | 262,828,930 |
| 1927 | 245,904,044 |

### Crude Oils of Burma

The crude oils of Burma vary quite widely in their characteristics. They are largely paraffinic and naphthenic in properties. In some cases very small quantities of paraffin are present in the oils, whereas the Yenangyaung crude is usually rich in paraffin wax, in this respect resembling Panhandle crude of Texas.

The gasoline produced from the distillation of Burma crude oil requires no treatment whatever. According to Wilson[5], a typical analysis of gasoline (specific gravity 0.757) representing 28 per cent of the crude will show:

| | |
|---|---|
| Per cent distilled over | °F. |
| Initial boiling point | 136°F. |
| 25.5 | 212 |
| 67.0 | 257 |
| 94.0 | 302 |
| End boiling point | 322 |

"The content of aromatic hydrocarbons is not quite uniform, but the following analysis of the distillate may be taken as representative:

| | In distillate to 302°F. % by volume | In crude oil % by volume |
|---|---|---|
| Benzene | 2 5 | 0 60 |
| Toluene | 5 2 | 1.26 |
| Xylene | 6.0 | 1.45 |
| Total % | 13.7 | 3.31 |

"While no figure representing percentage of naphthenes is offered, it can be stated that these compounds represent a good proportion of the gasoline fraction.

"The ultimate analysis of the gasoline distilling below 320° F. is:

| | |
|---|---|
| Carbon | 85.8% |
| Hydrogen | 14.2% |

"This represents an average composition of practically $C_5H_{12}$. The gasoline contains practically no olefins."

### Quality of Kerosene

Two qualities of kerosene are produced from Burma crude. Two-thirds of the whole kerosene fraction is filtered through bauxite to a water white product while the remainder, untreated, is sold as a second quality product. Wilson (loc. cit.) reports that less is known of the chemical composition of the kerosene fraction than of the gasoline: "Some indication of the nature of the oils which constitute Burma kerosene is given by means of fractional solution in liquid sulphur dioxide . . . In a typical example, a kerosene of specific gravity 0.835 gave, on treatment with liquid sulphur dioxide at 0° F.:

| | |
|---|---|
| 75% of specific gravity | 0.809 |
| 25% of specific gravity | 0.914 |

The solvent exerts a preferential solubility for aromatic hydrocarbons. "The ultimate analysis of the kerosene fraction is:

| | |
|---|---|
| Carbon | 86.5% |
| Hydrogen | 13.5% |

This represents an average composition of $C_nH_{1.87n}$."

The wax distillate produced from the crude oil is treated with caustic soda, and then refrigerated and filtered. The crude scale wax is sweated and filtered over bauxite.

The paraffin is usually marketed in grades having melting points from 120° to 125° and 140° to 145° F. By means of fractional crystallization from solution a number of members of the paraffin series have been separated, most of which correspond with hydrocarbons from other oils which have been identified by earlier investigators.

| Melting point of fraction °C. | Probable Identity | Melting point of hydrocarbons °C. | Authority for hydrocarbon |
|---|---|---|---|
| 47.8 | $C_{32}H_{66}$ | 48 0 | (*) |
| 53 6 | $C_{36}H_{74}$ | 53–54 | (†) |
| 57.3 | $C_{36}H_{74}$ | 56.8–57 | (‡) |
| 61 5 | ? | | |
| 64 2 | $C_{36}H_{66}$ | 63.6–64.1 | (‡) |
| 68 8 | $C_{31}H_{64}$ | 68.4 | (‡) |
| 71.7 | $C_{36}H_{66}$ or $C_{34}H_{70}$ | 71 8 or 71–72 | (‡) |

*Mabery, Proc. Amer. Acad. 40, 349. †Mabery, Proc. Amer. Acad. 37, 565. ‡Krafft, Ber. 40, 4,783. §Mabery, Amer. Chem. J. 33, 285.

Paraffins of higher melting point than the above occur in bottom settlings and in sucker rod paraffin. From the latter a fraction melting as high as 91° C. has been obtained, but up to the present the composition of such fractions has not been investigated. Such high melting point paraffins occur chiefly in the Singu Field.

### Lubricating Oil Fraction

The lubricating oil fraction, constituting a somewhat small portion of the crude, is treated with sulphuric acid. After chemical treatment it is vacuum distilled into the fractions desired.

It can, however, be fractionated into grades suitable for all classes of lubrication. Apart from their relatively high specific gravity, these oils possess no unusual characteristics.

The presence of substances of very high specific gravity in the lubricating oils is again shown by extraction with liquid sulphur dioxide, or, more conveniently in the laboratory, a solution of the latter in acetone. Two examples of such

(Continued on Page 133)

[1]Asiatic Researches 6, 127 (1799), through Treatise on Petroleum by Redwood, 2nd ed. Vol. 1, p. 48.
[2]Symes—See Petroleum by Boverton Redwood, 2nd ed., Vol. 1, p. 48.
[3]Stamp—J.I.P.T. 15, 307, (1929).
[4]Stamp—J.I.P.T. 15, 302, (1929).
[5]J.I.P.T. 10, 234, 1924.

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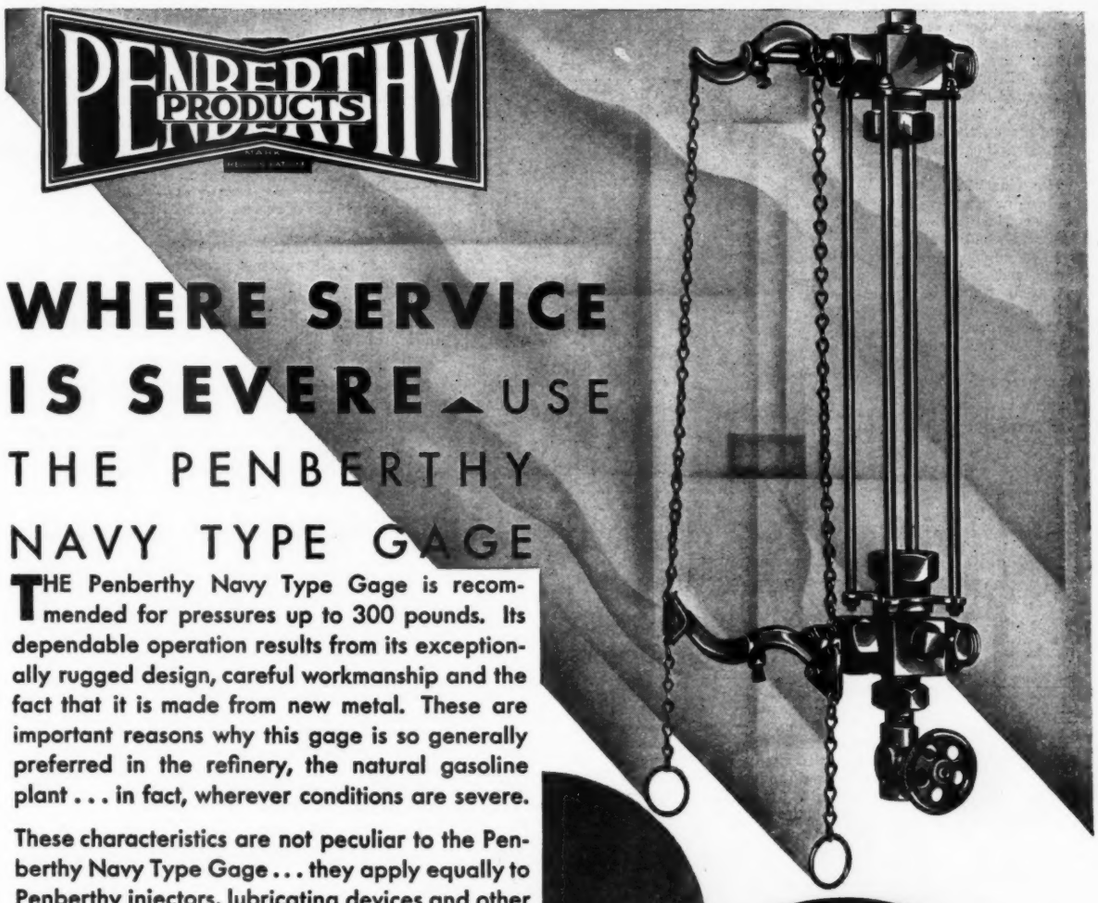
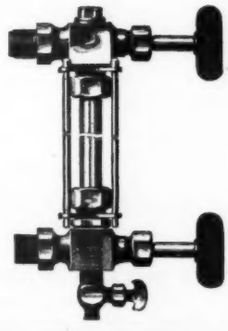




# COMPLETED WELLS AND INITIAL OUTPUT FELL OFF IN NOVEMBER

The number of wells completed in November in the fields east of California fell off 301 as compared with results in October, and the initial production was 117,787 bbls. less than that shown by the October crop of completions. There were 49 fewer dry holes in November and 51 fewer gas wells completed.

Overproduction of crude oil, a declining market price and continued and even more stringent proration of important pools, had their effect on the number of rigs up and wells drilling and at the close of November there were 82 fewer rigs and 145 fewer wells classified as drilling, a total decline in new operations of 227, when compared with October. Under normal market conditions areas like Lea County, New Mexico, and Van Zandt County, Texas, not to mention various other flush areas would be dotted by hundreds of drilling wells, but the work is being held back by the limited market for crude and the threat of even lower prices.

Following are the summaries for all the fields east of California:

**SUMMARY OF ALL FIELDS**
**WELLS COMPLETED**

| | Comp. | Prod. | Dry | Gas |
|---|---|---|---|---|
| Eastern | 230 | 889 | 47 | 64 |
| Central Ohio | 88 | 760 | 35 | 31 |
| Lima | 20 | 177 | 3 | 11 |
| Indiana | 18 | 146 | 6 | 5 |
| Michigan | 32 | 1,347 | 18 | 4 |
| Kentucky | 91 | 5,968 | 19 | 15 |
| Illinois | 12 | 61 | 5 | 0 |
| Kansas | 53 | 16,939 | 20 | 12 |
| Oklahoma | 205 | 388,053 | 70 | 33 |
| North Cent. Texas | 147 | 4,729 | 96 | 8 |
| East Cent. Texas | 36 | 74,302 | 18 | 0 |
| East Texas | 3 | ..... | 1 | 2 |
| West Texas | 38 | 12,569 | 12 | 0 |
| Texas Panhandle | 32 | 5,920 | 4 | 3 |
| Gulf Coast | 94 | 30,600 | 43 | 5 |
| Southwest Texas | 73 | 11,593 | 40 | 7 |
| North Louisiana | 53 | 2,861 | 25 | 19 |
| Arkansas | 8 | 115 | 4 | 2 |
| Mississippi | 10 | .... | 4 | 6 |
| Montana | 11 | 75 | 3 | 3 |
| Wyoming | 10 | 2,129 | 2 | 2 |
| Colorado | 4 | .... | 4 | 0 |
| New Mexico | 24 | 223,550 | 0 | 1 |
| Utah | 2 | ..... | 2 | 0 |
| Total November | 1,295 | 782,783 | 481 | 231 |
| Total October | 1,596 | 900,570 | 530 | 282 |
| Difference | 301 | 117,787 | 49 | 51 |

**RIGS AND WELLS DRILLING**

| | Rigs | Drlg. | Total |
|---|---|---|---|
| Eastern | 56 | 210 | 266 |
| Central Ohio | 36 | 148 | 184 |
| Lima | 6 | 25 | 31 |
| Indiana | 2 | 51 | 53 |
| Michigan | 63 | 104 | 167 |
| Kentucky | 16 | 151 | 167 |
| Missouri | 0 | 4 | 4 |
| Tennessee | 0 | 17 | 17 |
| Illinois | 2 | 23 | 25 |
| Kansas | 37 | 172 | 209 |
| Oklahoma | 84 | 541 | 625 |
| North Central Texas | 48 | 282 | 330 |
| East Central Texas | 6 | 32 | 38 |
| East Texas | 6 | 19 | 25 |
| West Texas | 34 | 162 | 196 |
| Panhandle Texas | 41 | 91 | 132 |
| Gulf Coast | 21 | 150 | 171 |
| Southwest Texas | 79 | 196 | 275 |
| North Louisiana | 38 | 86 | 124 |
| Arkansas | 5 | 51 | 56 |
| Mississippi | 11 | 27 | 38 |
| Alabama | 2 | 3 | 5 |
| Montana | 18 | 77 | 95 |
| Wyoming | 22 | 109 | 131 |
| Colorado | 14 | 78 | 92 |
| New Mexico | 14 | 76 | 90 |
| Utah | 1 | 24 | 25 |
| Total November | 662 | 2,909 | 3,571 |
| Total October | 744 | 3,054 | 3,798 |
| Difference | 82 | 145 | 227 |

## OIL MAN'S CALENDAR

**DECEMBER**

11-13—Great Falls, Mont., joint convention, Montana chapter, Rocky Mountain Oil and Gas Association and Oil and Gas Association of Canada.

15-16—Knoxville, Tenn., Tennessee Oil Men's Association, Farragut Hotel.

**JANUARY**

3-10—New York, National Automobile Show.

10-16—St. Louis, Mo., twenty-eighth annual convention, American Road Builders Association.

14-15—Minneapolis, Minn., Minnesota division, Northwest Petroleum Association, Radisson Hotel.

19-23—Detroit, Mich., annual meeting, Society of Automotive Engineers, Book-Cadillac Hotel.

24-31—Chicago, National Automobile Show.

29-30—Grand Forks, N. Dak., North Dakota division, Northwest Petroleum Association, Dacotah Hotel.

**FEBRUARY**

16-21 — San Francisco, Calif., National Western Metal Congress and Exposition.

24-26 — Columbus, Ohio, Ohio Petroleum Marketers Association, Neil House.

**MARCH**

16-22—Los Angeles, Calif., second annual Exposition, Oil Equipment and Engineering Exposition.

19-20-21 — San Antonio, Tex., American Association of Petroleum Geologists, Gunter Hotel.

**APRIL**

15-16—A.P.I. Division of Refining, Statler Hotel, St. Louis, Mo.

**MAY**

4-9 — Charlotte, N. C., Good Roads Convention,

Memphis, Tenn., Natural Gas Department, A.G.A.

12-13—A.P.I. Division of Marketing, Mayo Hotel, Tulsa.

**JUNE**

3-4—A.P.I. Division of Production, Baker Hotel, Dallas, Tex.

## State Acts Against Alleged Violators of Commission's Orders

OKLAHOMA CITY, Okla., Dec. 8.—E. S. Ratliff, attorney for the State Corporation Commission, said the commission requested the attorney-general's office today to apply in district court for a receivership of the properties of two oil companies for alleged violation of the proration rules in the Oklahoma City Field.

The companies are the Century Petroleum Corp. and the Marco Oil & Royalties Corp., which notified the commission Saturday they would not abide by the proration orders pending hearing of a federal court suit attacking them. Ratliff said no suit would be brought against Oils, Inc., which had been included in the notice, as that company notified Otto Bradford, field umpire, it would not violate the commission's ruling.

The commission has set citations against the two companies for alleged violations of its orders for hearing Thursday.

The case of the Champlin Refining Co. testing the validity of the commission's proration orders has been set for hearing on its merits in the federal court December 17.

## Late Fields

### GULF COAST

HOUSTON, Tex., Dec. 9.—Cockburn Oil Co.'s No. 2 Hawkins, discovery well of Shepherds Mott, Franham Fry Survey, Matagorda County, completed Saturday flowing at the rate of 350 bbls. daily but which sanded up Monday, was bailing Tuesday showing some oil. The well is from a broken formation at a total depth of 5,244 feet with 68 feet of screen in the hole. Corrected gravity of the oil is 37.2°.

### CALIFORNIA

LOS ANGELES, Calif., Dec. 8.—Operators watching the Bolsa Chica Oil Co.'s tideland wildcat at Coal Oil Point, located approximately 5 miles east of the prolific Elwood Field of Santa Barbara County, are wondering if the Bolsa is going to bring in another Elwood. The Bolsa Chica's test has just reached the critical point and developments during the next week or 10 days may throw some light on existing subsurface conditions. The bit is at present in the cap rock which, like Elwood, overlies the Vaqueros formation. Confidential reports credit the Bolsa Chica's test with better than an even chance of getting production. During the past week it has been impossible to get any cores as the gas in the overlying shales has blown out every core sample. This well will bear very close watching as it looks exceptionally promising.

### COLORADO

DENVER, Colo., Dec. 8.—Platte Valley Petroleum Co.'s No. 1 Patterson, Section 24-6n-61, Greasewood Dome, Weld County, Colorado, which has been standing at 6,667 feet since October 10 and flowing 120 to 200 bbls. daily, was deepened 2½ feet Saturday night and flow increased to between 600 and 700 bbls. daily. Drilling was suspended to test. Late reports say well has not yet entered sand.

### KANSAS

Vickers Petroleum Co. and others' No. 2 Binger, SE cor. NW SE Section 21-20-10w, in the Schurr Pool, in Rice County, found the Silicious lime at 3,340 feet, with a showing of oil. The test is located two locations east of the discovery well. The 6-inch casing was being underreamed to the Silicious lime before completing.

The east edge of the Eastborough Pool may be defined. Ramsey and others' No. 1 Davies, SW Section 17-27-2, was estimated to be making 150 bbls. a day from the chat at 2,951-75 feet. Unless the well improves with deeper drilling it will be a small well for the area, and may indicate the east edge of the pool was being defined.

Aladdin Petroleum Corp. and others' No. 1 Unruh, NW cor. SE Section 31-19-1w, is a location north of the Ritz Pool, in McPherson County. The location is between the production in the Ritz Pool and the new Canton Pool.

The Texas Company's No. 4 Munn, SE cor. NE NE Section 12-20-2w, McPherson County, flowed 1,511 bbls. the first 12 hours from the chat at 2,960-78 feet.

(Continued on Page 196)

### MAGNETIC STORM

Tucson Observatory of the United States Coast and Geodetic Survey report a moderate magnetic storm starting at 7 p.m. (C.S.T.) on December 3 and ended at 8 a.m. December 4. The telegrams follow:

"Storm began third, One. Moderate."

"Storm ended fourth. Fourteen."

# High Spots in Field News

**KANSAS**

New well in Welch Pool, Rice County, made 1,444 bbls. in 18 hours.

**MICHIGAN**

Deep test in Muskegon below 3,700 feet with no showings.

**NEW MEXICO**

Hobbs Pool appears nearing edge on west. New operations in Eddy County.

**NORTH LOUISIANA-ARKANSAS**

Two 2,000-bbl. producers in Zwolle south field. Several wildcat failures reported.

**GULF COAST**

Shepherds Mott, Matagorda County, gets its first oil well, flowing at rate of 300 bbls.

**OKLAHOMA**

Well 6 miles south of Wewoka, third in new area, makes 2,690 bbls. from 3,000 feet.

**EAST CENTRAL TEXAS**

Offset to Joiner well making better showing. Farthest northern test in Van area abandoned.

**COLORADO**

Greasewood Dome, Weld County, well deepened 2½ feet increased flow to between 600 and 700 bbls.

**SOUTHWEST TEXAS**

Gas pressure declines in Pettus Pool. Deep test in Agua Dulce Field, Nueces County, may be producer.

**NORTH TEXAS AND PANHANDLE**

Efforts to relieve producers whose connections are to be ended. Possible new pool in wildcat territory in Young County.

**WEST TEXAS**

New gas showing in Edwards County. Loving County most active in Permian Basin. Tubing successful in Big Lake deep well.

**CALIFORNIA**

Tideland wildcat at Coal Oil Point, east of Elwood, may prove another Elwood field.

Supreme Court of State upholds gas conservation law on every point.

## SCORE SHEET ON OIL PRODUCTION

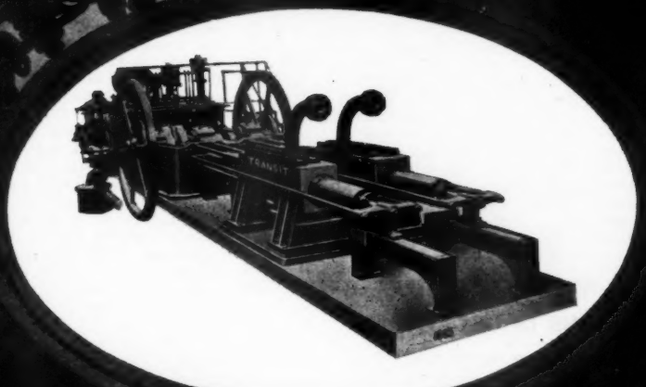
Below is shown allotted average daily production in the United States from October 1, 1930, to April 1, 1931, suggested by the American Petroleum Institute's special committee on the economic situation, and the actual daily average production during the week ending December 6:

| | Allotted (bbls.) | Actual (bbls.) | Over (bbls.) | Under (bbls.) |
|---|---|---|---|---|
| Okla., Kans., S.W. Tex., North Tex.* | 953,700 | 870,811 | ..... | 82,889 |
| West Texas and S.E. New Mexico | 316,300 | 306,019 | ..... | 10,281 |
| North Louisiana and Arkansas | 86,400 | 95,540 | 9,140 | ..... |
| Gulf Coast | 177,800 | 182,884 | 5,084 | ..... |
| Rocky Mountain | 58,600 | 62,182 | 3,582 | ..... |
| California | 530,100 | 598,500 | 68,400 | ..... |
| Other fields | 110,600 | 111,000 | 400 | ..... |
| Total | 2,233,500 | 2,226,936 | 86,606 | 93,170 |

Net average daily underproduction, 6,564 bbls.

*North Texas includes North, Central and East Central Texas and Texas Panhandle.

# STRONG *and* STURDY



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# Object to Curtailment of Oklahoma City

## Two Companies Say They Will Keep Wells Open Pending Court Decision. State's Production Down to 451,500 Bbls.

By W. A. Spinney
*Staff Correspondent, Oklahoma Fields*

Developments in the Oklahoma City Field during the last part of the week in review indicate some of the producers may again test the Oklahoma proration plan in the courts. Three operators have served notice on the Oklahoma Corporation Commission that they would produce their wells, pending the appeals from that body to the Federal court. The Century Petroleum Co. is reported to have had two wells open and the Marco Oil & Royalty Co. one well on production. Century Oil Co.'s No. 1 Wyatt, in Section 2-11-3w, is said to have averaged 1,000 bbls. an hour, and No. 1 Jefferson, in Section 2-11-3w, between 400 and 600 bbls. an hour. No gauges were available on the Marco Oil & Royalty Co.'s well. Oils, Inc., is the third objector.

The Oklahoma Corporation Commission issued an order on December 5, requiring approximately 25 completed wells in the Oklahoma City Field, that have been "stop-cocking" to flow wide open four consecutive hours each 12-day period to determine the potential standard upon which to base proration. It is believed the order will result in a reduction of approximately 50,000 bbls. a day in the estimated potential of the Oklahoma City Field.

The State's production was reduced approximately 34,000 bbls. for the seven days ending December 6, when the total averaged around 451,500 bbls. a day. The decline is due to the reduced requirements of crude oil buyers.

### Enormous Gas Well

One of the largest gas wells in the State was completed in the Oklahoma City Field, the Blackwell Oil & Gas Co. and Jones Brothers Drilling Co.'s No. 1 Scruggs, NW cor. SW NE, Section 35-12-3w, which gauged 225,000,000 feet of gas a day. The well was making some gasoline but the connections were leaking and it was shut in before a gauge could be taken of the gasoline. The operators were producing the well through chokes to prevent sand cutting. The well was completed several weeks ago and extended production in the north end of the field, producing from the Wilcox sand at a total depth of 6,398 feet.

The total production from the Oklahoma City Field for the seven days ending December 6, was 613,175 bbls., a daily average of 87,596 bbls. The underproduced wells in the field are now on production and attempting to make up their quota. It is believed by the first of the year these wells will be resuming the normal method of being produced.

### Good Well in Tatums Pool

New producers were completed in the Tatums Pool in Carter County during the week; others were preparing to test, and new locations were announced. C. L. Anderson's No. 6 Eaves, NE cor. NE SW, Section 24-1s-3w, a new producer in the pool, swabbed 50 bbls. an hour on a 12-hour test. The oil was found in a series of sands at 2,357-2,637 feet. Trevlyn Oil Co.'s No. 1 Meeks, SE cor. SW SW, Section 19-1s-2w, a new well in the southeastern part of the Tatums Field, flowed 38 bbls. in 24 hours from sand at 1,793-1,934 feet. The well has been shut in for proration. Magnolia Petroleum Co.'s No. 3 M. Dickerson, CNL NW NE SE, Section 24-1s-3w, is a new location offsetting the same company's No. 1 M. Dickerson, which was a dry hole at 4,200 feet, where it was abandoned. No. 2 M. Dickerson was completed for 2,500 bbls. a day. Lesh and McCall's No. 1 Hooks, SW cor. NW SW, Section 14-1s-3w, a quarter of a mile north of production in the field, was being completed as a producer from a series of sands at 2,485-2,560 feet. The well was estimated at 40 bbls. a day.

A new wildcat test was announced by Gouin and others, No. 1 Burton, SE cor. SW NE, Section 31-1s-2w. The location is 1½ miles southeast from the Tatums Pool.

Another wildcat showing oil is to be put on the pump for a production test. The well is Johnson and others' No. 1 Walker, NW cor. SW NE, Section 20-4s-2w, Carter County, located between the Hewitt and Healdton Pools. It is estimated at 20 bbls. a day from sand at 1,620-53 feet.

### New Wells in Stephens County

In Stephens County, two tests were showing oil in new areas and were considered important developments. The new field southeast of Comanche has four wells ready to put to puming. One new location was made and one test was abandoned. L. Sikes and others' No. 1 Kirk, NW cor. SE, Section 16-1s-8w, a wildcat was showing oil at 3,150 feet, while coring broken sand. Dixie Oil Co. and McMan Oil & Gas Co.'s No. 3 Potts, SW cor. NE NW, Section 3-2s-8w, had a showing of oil at 2,372-81 feet. It is a wildcat test located between the Comanche and Empire Pools. The tests being prepared for pumping were, Pace's No. 1 Toney, SW cor. SW NW, Section 27-2s-7w, estimated at 50 bbls. a day from sand at 1,502-06 feet; Carter Oil Co.'s No. 1 Toney, NW cor. NE SW, Section 27-2s-7w, being rigged to pump from sand at 1,494-1,505 feet; The Texas Company's No. 1 Toney, NW cor. NE, Section 27-2s-7w, estimated at 75 bbls. a day from sand at 1,498-1,504 feet, and Pace's No. 4 Dilley, NW cor. NE NW SW, Section 27-2s-7w, to test a showing of oil in sand at 1,498-1,503 feet.

### Test in Love County

Another wildcat test was announced for southern Oklahoma during the week. Gilcrease Oil Co. and others' No. 1 Burkhart, NE cor. NW, Section 13-8s-1, Love County, is one of the most southern tests in Oklahoma. The test has been contracted to drill to the 2,500-foot level, but it is expected the operators will drill deeper to test the section unless oil or gas is found in shallow formation. The location is on a block of 2,000 acres with other operators holding interests, and is only a short distance from the Red River.

### Test to the Granite

Young & Pray's No. 1 Klein, NE cor., Section 8-3-10w, Comanche County, is expected to resume operations in a few days at a total depth of 2,300 feet. This is expected to be a deep test and may be drilled to the granite if necessary to make a test of the formations projecting from the Washita Mountains. Companies interested in the area are contributing to drill to the granite, since the territory between the test and the mountains has been closely leased during the last year and a half.

### Air-Gas Lifts in Oklahoma City

Skelly Oil Co. has completed its first air-gas lift plant in the Oklahoma City Field, and has started work on its second. The first plant was completed on the Ainsworth lease in the SE NE Section 10-11-3w, north end of the field. Lines will be laid from the plant to the company's wells on the Ainsworth, Tanner and Field leases. The plant will be put into operation when the wells stop flowing. The plant is a seven-unit type of modern equipment. Gas will be furnished by the Phillips Petroleum Co. gasoline plant. Work has been started on the Skelly Oil Co.'s second air-gas lift plant on the Hoopes lease in Section 31-11-2w, in the south end of the field. The plant will also be a seven-unit type and will be used to produce the eight wells on the Hoopes lease.

The pipe line situation in the Oklahoma City Field is expected to be improved after the first of the year. The field at present has 660 completed wells and the daily average flow is around 2½ per cent of the rated potential and will be held at that figure until the first of the year. A change in the method of proration may be tried in the field, changing from the time method to percentage basis, but it may not permit the handling of more oil. However, it is expected to so distribute the flow that all wells can produce oil almost daily.

### New Pipe Line Outlets

Continental Oil Co.'s new pipe line will start construction work in a few days and it is expected to be completed by February 1. The line will be 81 miles in length and will run from the Oklahoma City Field to the main line at Tonkawa. Sinclair-Texas Pipe Line Co.'s new 12-inch pipe line from the Oklahoma City Field to the company's refinery at Coffeyville in southeastern Kansas is expected to be in operation by the first of the year. Prairie Oil & Gas Co. has reduced its purchases in the Oklahoma City Field to 1,000 bbls. a day in December. Other pipe lines are expected to continue to handle approximately the same amount of oil they have been taking until the beginning of the new year. The local pipe line companies may increase purchases as the local refineries increase their runs. The time proration method prevents regular runs from the wells and if the method is changed several of the lines may increase their shipments.

### Sunray Enters "City" Field

Sunray Oil Co. has purchased the holdings of Gant & Garvin, independent operators in the Oklahoma City Field for a total consideration of $1,250,000, part cash and the balance in oil. The sale is to be effective January 2, 1931.

The transaction includes two producing wells and three drilling tests and the acreage surrounding the operations. Gant & Garvin are to receive $100,000 cash and the remainder to be paid out from oil produced on the properties.

The wells now producing are No. 1 Olafson, NE cor. NW SW, Section 2-11-3w, completed October 12 for 3,842 bbls. in eight hours, and is now shut in under the proration orders. No. 1 Harrison, SW cor. NE NW, Section 2-11-3w, was completed September 18, for 2,210 bbls. in 19½ hours, and is shut in for proration. Drilling tests were No. 1 Twyford-Smith, SW cor. NW SW NW, Section 10-11-3w, which was connecting for completion. No. 1 Mead, SE cor., Section 34-12-3w, and No. 1 Donovan, SW cor. SE, Section 34-12-3w, both are nearing completion.

The Oklahoma City Field began its third year December 4, as a producing area. It produced approximately 37,400,000 bbls. of oil in two years. The discovery well in the field was Indian Territory Illuminating Oil Co.'s No. 1 fee, C SE SE, Section 24-11-3w, which has produced 1,100,000 bbls. of oil. The initial production of the well was 5,000 bbls. and at the present is 200 bbls. per day together with 3,000 bbls. of water. The first oil production was found in the Silicious lime at 6,498 feet and since that time production in the field has been found in the Simpson and Wilcox sands.

The Greater Seminole area completed taking potentials during the week. A survey of the Seminole district in eight of the main pools shows only 11 drilling operations under way. The pools comprising the Seminole Field have produced approximately 400,000,000 bbls. of oil to December 1. The pools include Seminole, East Seminole, Bowlegs, Little River, East Little River, Earlsboro, East Earlsboro, South Earlsboro, Searight, Maud, Mission and Carr City. In taking the potentials in Greater Seminole it was found that 71 per cent of the wells were pumping, 46 per cent were making water, 14 per cent were on air-gas lift, 10 per cent were off production and 3 per cent were flowing.

The Burbank Field in Osage County has been slowly declining and some of the companies were withdrawing oil from storage and tearing down the storage tanks. Phillips Petroleum Co. is tearing down three 55,000-bbl. tanks and shipping them to Borger, Tex.

### Big Well North of Cromwell

Atlantic Oil Producing Co.'s No. 1

(Continued on Page 173)

## WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

**NORTHERN OKLAHOMA**

**ALFALFA COUNTY**

| Company, farm and location— | Remarks: |
|---|---|
| Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w | Shut down 1,232 ft. |
| J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w | Drlg. 4,690 ft. |

**BECKHAM COUNTY**

| | |
|---|---|
| Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w | Shut down 765 ft. |
| Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w | Waiting on cement to set 430 ft. |
| Mid-Texas Co.'s No. 1 Sidell, SE cor. SW SW Sec. 17-3-22w | Shut down 2,402 ft. |
| White et al's No. 1 Green, SW cor. Sec. 34-10-24w | Drlg. 2,000 ft. |

**BLAINE COUNTY**

| | |
|---|---|
| Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w | Drlg. 4,300 ft. |

**CADDO COUNTY**

| | |
|---|---|
| Magnolia's No. 1 White, SW SE Sec. 25-6-10w | Drlg. 4,880 ft. |
| Abernathy & Brown's No. 2 Houston, Sec. 24-6-11w | Shut down 1,090 ft. |

**CLEVELAND COUNTY**

| | |
|---|---|
| Harris et al's No. 1 Highbee, SE NW Sec. 20-4-1 | Shut down 6,518 ft. |

**COAL COUNTY**

| | |
|---|---|
| Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8 | Shut down 125 ft. |
| Mid Western Oil Co.'s No. 1 Gum Bros., C SW NW Sec. 30-3-10 | Drlg. 2,148 ft. |
| Blackwell O. & G. Co.'s No. 1 L. Jackson, NW cor. Sec. 26-3-9 | T. D. 5,055 ft.; plugged back to 4,010 ft. |

**COMANCHE COUNTY**

| | |
|---|---|
| Croy & Young's No. 1 Cline, NW NE NE Sec. 8-3-10w | Drlg. 2,137 ft. |
| G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-3w | Shut down 1,450 ft. |

**GARFIELD COUNTY**

| | |
|---|---|
| E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w | Shut down 5,325 ft. |

**GRADY COUNTY**

| | |
|---|---|
| J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w | Shut down 100 ft. |

**GREER COUNTY**

| | |
|---|---|
| French's No. 1 Murphy, SW NW Sec. 23-7-21w | Drlg. 780 ft. |

(Continued on Page 221)

# Kansas Production Cut to 105,000 Barrels

## Reduction Would Have Been Deeper but for Potential Tests. Proration Committee Faces Serious Problems

By W. A. Spinney
*Staff Correspondent, Kansas Fields*

The production situation in Kansas is being considered by operators in an effort to determine the best policy during the next several months. The principal subject under discussion at present is the disposition of oil handled by the Prairie Oil & Gas Co. which announced it will discontinue purchasing crude oil at the wells on December 31, 1930.

The State's production declined for the seven days ending December 6, to an average daily output of approximately 105,000 bbls. A larger decline was expected but the pipe lines in the Voshell Pool increased runs in the area from 6,000 bbls. a day to 13,300 bbls. a day. The increase was due to some companies run around 20 per cent of the oil instead of 8 per cent. In the older areas in the State a reduction of two-thirds was put into effect on December 1, by the Prairie Oil & Gas Co. which reduced the State's total production.

The statewide proration committee met in Wichita December 3, and the members were unable to agree on the future policy of proration in the State. The committee was unable to estimate the pipe line requirements and another meeting was called at which the pipe line representatives will be asked to be present. During the meeting a resolution was made to curtail all the flush fields in the State to 20 per cent of potential, the balance of the wells in the State making more than 5 bbls. per well be prorated 50 per cent of the excess over 5 bbls., with all wells under 5 bbls. not prorated. The motion was withdrawn and not acted upon. At the next meeting an attempt will be made to work out a proration policy and an allowable for the State. It was suggested all wells making water be given special consideration.

Another wildcat location was reported in northwestern Kansas in Sheridan County. The location was made by S. M. Bailey and others' No. 1, in the SE cor. SW SW, Section 27-7-26w. The test is located on acreage held by the Madolin Oil Co.

### Core Drilling in 13 Counties

Core drills are active in 13 western counties in the State while development work in the older areas is being curtailed. Development is going ahead only where competitive drilling demands. Exploration work in the western and wildcat counties is continuing. Operators are seeking new areas during the present slack period, hoping to have a future supply ready to bring on the market when conditions warrant.

Core drills are being operated in an effort to locate favorable structures where future wildcat tests may be drilled. The active counties in which core drilling is in progress are Clark, Rooks, Ellsworth, McPherson, Comanche, Finney, Lane, Gove, Rice, Kearney, Pratt, Ford and Kingman. A geophysical unit is at work in the western part of the State.

The pipe lines were unable to handle the production from the Ritz Pool, in McPherson County, when the potentials were taken during the week. Two new producers made better than 2,500 bbls. a day. Lario Oil & Gas Co.'s No. 2 Miller, SE cor. NE SE, Section 1-20-2w, flowed 1,292 bbls. in 12 hours from the chat at 2,919-20 feet, under a back pressure of 600 pounds. The well will be pinched to 840 bbls. a day under the present proration plan. The other producer was Palmer and the Phillips Petroleum Co.'s No. 2 Ritz, NW cor., Section 7-20-1w, which flowed 1,243 bbls. in 12 hours from the chat. The Ritz area is one of the most active in the State having two pay horizons. New tests are drilling north of the Ritz Pool, surrounding the Mid-Kansas Oil & Gas Co.'s No. 1 Garrett, which was a 3,500-bbl. producer in the deep sand. In the Decker gas area several tests are under way.

New oil wells were completed in the Decker gas field in McPherson County. Graham Oil Co. and others' No. 1 Robinson, C SE SW, Section 10-19-2w, was showing 1,000,000 feet of gas from chat at 2,921 feet, and was preparing to underream the 6-inch casing before cementing. McPherson Oil & Gas Co.'s No. 1 Hill, C NE, Section 10-19-2w, made 16,500,000 feet of gas with 870 pounds rock pressure from chat at 2,925-45 feet.

The Shell Petroleum Corp.'s No. 1 Koehn, SW cor. SE NE, Section 16-21-3w, is a new location in the south extension to the Voshell Pool. The location is the north offset to the Dixie Oil Co. and Amerada Petroleum Corp. and others' No. 1 Zarger, in the same section which was recently drilled into the Simpson sand and swabbed 797 bbls. in 20 hours extending production in the Voshell area a half mile to the south.

Gypsy Oil Co.'s No. 1 Coleman, C SW NE, Section 25-17-25w, Ness County wildcat, was preparing to spud. It is the only operation in the county.

### Barton County's New Well

The new well in Barton County offsetting the discovery well was drilling deeper in hopes of increasing the production. The well, Syndicate Oil & Gas Co.'s No. 1 Pierano, in Section 4-16-11w, was drilled deeper from 3,313 feet to a total depth of 3,319 feet. The top of Silicious lime was found at 3,311 feet. After the deepening, oil rose 1,400 feet in the hole the deepening apparently not helping the showing of oil. It is expected the best pay will be found in the bottom of the Silicious lime. The discovery well was drilled by the Prairie Oil & Gas Co. and when shut in several months ago the well gauged 200 bbls. a day. It was the first commercial well found in Barton County.

### Outlet for Schurr Pool Crude

The Schurr Pool in Rice County now has an outlet for its oil production. An immediate prospect of running oil from the shut-in wells in the Schurr Pool, at Raymond, was in view when the Prairie Pipe Line Co. completed its new pipe line into the pool during the week. The company is expected to start filling the line with oil, to test the 44-mile extension from the Voshell Pool, in McPherson County. It is estimated approximately 12,000 bbls. of oil will be required to fill the line to make a test before the company starts purchasing and shipping crude. There is considerable oil in the storage tanks on the leases.

It is believed the Prairie Oil & Gas Co. expects to purchase 50 bbls. a day from each completed well. The pool has 11 completed wells with an estimated potential of 15,000 bbls. a day. The wells in the area have been shut in for several months since the Independent Oil & Gas Co. withdrew from the field as a purchaser, last summer.

Hipple & Rogers' No. 1 Rainey, in Section 3-21-6w, an extension to the Welch Pool, in southeastern Rice County, flowed 114 bbls. the first 1½ hours. The production was found in the chat at 3,368-91 feet. The well is estimated at 500 bbls. a day.

Gypsy Oil Co. and others' No. 1 Wellman, NE cor., Section 29-21-9w, a wildcat southeast of the Schurr Pool, in Rice County, found a hole full of water at 3,553 feet, in the Silicious lime. It will probably be plugged and abandoned.

### Eastborough Has 31 Wells

The thirty-first well was completed in the Eastborough Pool during the week. The well was Magnolia Petroleum Co.'s No. 3 Wheeler, NE cor., Section 19-27-2, found oil in the chat at 2,948 feet. The new well is near some of the largest producers in the field. Oil rose several hundred feet in the hole. The well swabbed 16 bbls. an hour from the chat at 2,948-72 feet.

Some of the older wells in the Eastborough Pool are still without a pipe line connection. C. L. Work and others' No. 1 Freeman-Cline, NE cor. NW, Section 19-27-2, which is estimated to be a 400-bbl. well, is shut in pending pipe line connections. The well was drilled into the chat pay more than a month ago. It extended production more than a quarter of a mile to the west. Hershey & Jones' No. 1 Smyser, in Section 19-27-2, drilled into the deep pay horizon about two weeks ago at 3,296-3,300 feet, is also without any pipe line connection and is shut in after gauging 117 bbls. in 17 hours. The operators plan to put the well to pumping. Blankinship Petroleum Corp.'s No. 1 Schafer, NE cor. NW, Section 30-27-2, which is producing from the deep sand making around 150 bbls. a day, going into storage on the lease.

Lario Oil & Gas Co.'s No. 1 Heckard, SW cor. SE NW, Section 18-27-2, was a location on which drilling was preparing to start. The location is about three-quarters of a mile northwest of production in the pool.

Several tests were nearing the pay horizon in the Eastborough Pool. Blankinship Petroleum Co.'s No. 2 Schafer, SE cor. NE NW, Section 30-27-2, was underreaming 5-inch casing at a total depth of 3,240 feet, and will drill into the deep pay horizon when the underreaming is finished. It will be the second deep sand test in the south end of the pool. Another test expected to reach the chat in a few days is Ramsey and others' No. 1 Davies, SW cor., Section 17-27-2, on the north side of the pool, which was drilling at 2,935 feet.

### Butler County

Blaksley & Wentz' No. 1 Holliday, SW cor. NE, Section 24-27-4, is a machine rigging up. McCulloch and Empire Oil & Refining Co.'s No. 1 Lilly, SW cor. NW NW, Section 23-23-5, has been abandoned at 2,320 feet. Ramsey and others' No. 1 Ramsey, SW cor. NE, Section 8-24-5, is dry and abandoned at 3,356 feet.

### Chautauqua County

Below and others' No. 1 Fulgamore, SW cor. NW, Section 9-35-11, is drilling at 1,600 feet.

### Coffey County

Rockhill and others' No. 1 Rich, SW cor. NE, Section 14-20-13, is a dry hole at 1,734 feet. The Prairie Oil & Gas Co. made location for No. 1 Knapp, SW cor. NE, Section 35-21-13.

### Elk County

Aladdin Petroleum Co.'s No. 1 Donnell, NE cor. SE SW, Section 26-29-10, has been abandoned at 2,411 feet.

### McPherson County

McBride and Dixie Oil Co. and others' No. 1 Lovett, C NW SW, Section 13-19-2w, is a rig under construction. Youker and Shell Petroleum Corp. made location for No. 1 Gratton, SE cor. SW SW, Section 24-19-2w. Lario Oil Co. and Shell Petroleum Corp. staked location for No. 3 Miller, NE cor. SE SE, Section 1-20-2w. McPherson Oil & Gas Co. and Shell Petroleum Corp.'s No. 1 Hill, C NE, Section 10-19-2w, has been completed for 16,977,000 feet of gas in chat 2,929-45 feet. Lario Oil Co. and Shell Petroleum Corp.'s No. 2 Miller, SE cor. NE SE, Section 1-20-2w, has been completed for 2,584 bbls. in chat 2,919-65 feet. Palmer and Phillips Petroleum Co.'s No. 2 E. Ritz, NW cor., Section 7-20-1w, made 2,016 bbls. in chat 2,933-68 feet. The Texas Company's No. 4 Munn, SE cor. NE NE, Section 12-20-2w, has been completed for 3,000 bbls. in chat 2,980-88 feet. Noble & Sampson and others' No 1 Zerger, NW cor. NE SE, Section 16-21-3w, produced 797 bbls. in 20 hours from Wilcox sand 3,412-25 feet.

### Reno County

Braden & McClure and others' No. 1 Friessen, SE cor. NE, Section 6-22-4w, is a dry hole at 4,030 feet.

### Rice County

Allison & Fitzwilliams' rig is up for No. 1 Walsten "A," NW cor., Section 2-21-6w. Jasper & Bechka and others' No. 1 Cupp, SW cor. NE, Section 22-18-8w, has been abandoned at 3,522 feet.

### Sedgwick County

Lario Oil Co. and Connell and others moved the rig in for No. 1 Heckard, SW cor. SE NW, Section 18-27-2. Cameron & Cameron and others' No. 1 Parks, NW cor. SW, Section 13-28-1, is dry and abandoned at 3,475 feet in Silicious lime. Mission Oil Co. and others' No. 1 Carlton, SW cor. NW NW, Section 23-28-1, has been abandoned at 3,460 feet. Aladdin Oil Co. and Fisher & Lauck's No. 1 Russell, CEL W half SE SW, Section 27-28-1, is dry and abandoned at 3,608 feet. Lassen and others' No. 1 Schwertner, NE cor. SW NW, Section 11-27-1w, has been abandoned at 3,533 feet in Wilcox sand.

## WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

**BARTON COUNTY**

| Company, farm and location— | Remarks: |
|---|---|
| Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w | Shut down 480 ft. |
| McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w | Shut down 1,400 ft. |

**BUTLER COUNTY**

| | |
|---|---|
| McCulloch and Empire's No. 1 Lilley, SW NW NW Sec. 23-23-5 | Abandoned 2,320 ft. |
| Farrell et al's No. 1 Sutton, NW cor. Sec. 18-28-7 | Fishing 1,875 ft. |

**CLARK COUNTY**

| | |
|---|---|
| Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w | T. D. 6,909 ft.; plugged back to 6,530 ft. to test show gas. |

**CLAY COUNTY**

| | |
|---|---|
| Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2 | Shut down 2,390 ft. |

**COFFEY COUNTY**

| | |
|---|---|
| Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14 | Shut down 818 ft. |
| McGregor's No. 1 Wood, NE NW SW Sec. 20-22-15 | Abandoned 650 ft. |
| Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15 | Fishing 1,250 ft. |

**COWLEY COUNTY**

| | |
|---|---|
| Roth & Farout's No. 1 Reedy, SW NW NE Sec. 8-33-8 | Fishing 912 ft. |
| Tom Fine's No. 1 Boyd, NW NE Sec. 23-32-4 | Shut down 2,650 ft. |

**DICKINSON COUNTY**

| | |
|---|---|
| Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2 | Drlg. 2,955 ft. |

**DOUGLAS COUNTY**

| | |
|---|---|
| Steinbuckle's No. 1 Unknown, SW NE NW Sec. 34-14-21 | Abandoned 1,100 ft. |

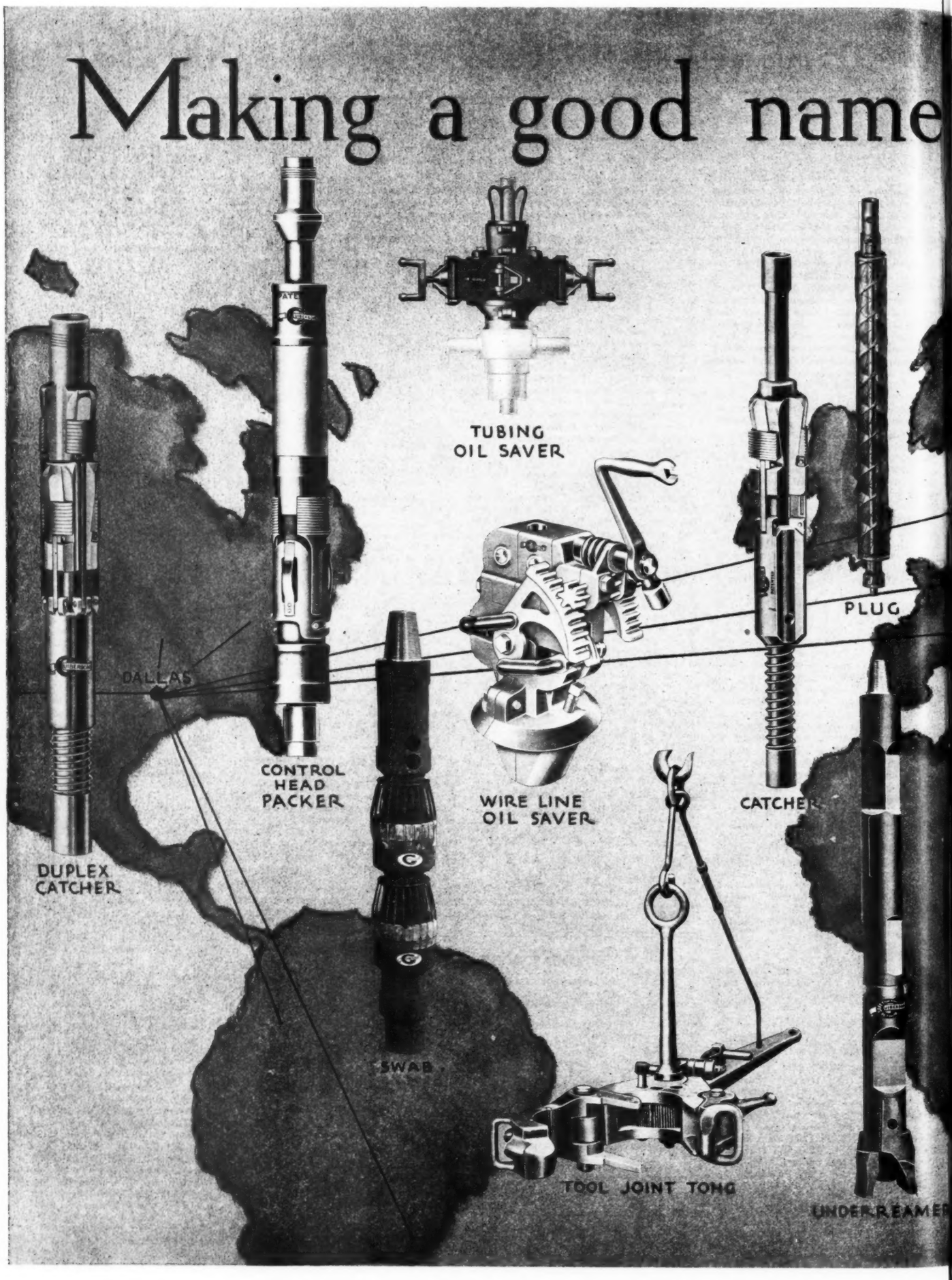
**ELLIS COUNTY**

| | |
|---|---|
| Central Commercial Oil Co.'s No. 1 Helma, SE cor. NE Sec. 3-12-20w | T. D. 4,095 ft.; water; shut down. |

**ELK COUNTY**

| | |
|---|---|
| Aladdin's No. 1 Donnell, NE SE SW Sec. 26-29-10 | Wilcox 2,386-2,411 ft.; show oil; shut down. |

(Continued on Page 223)


Making a good name
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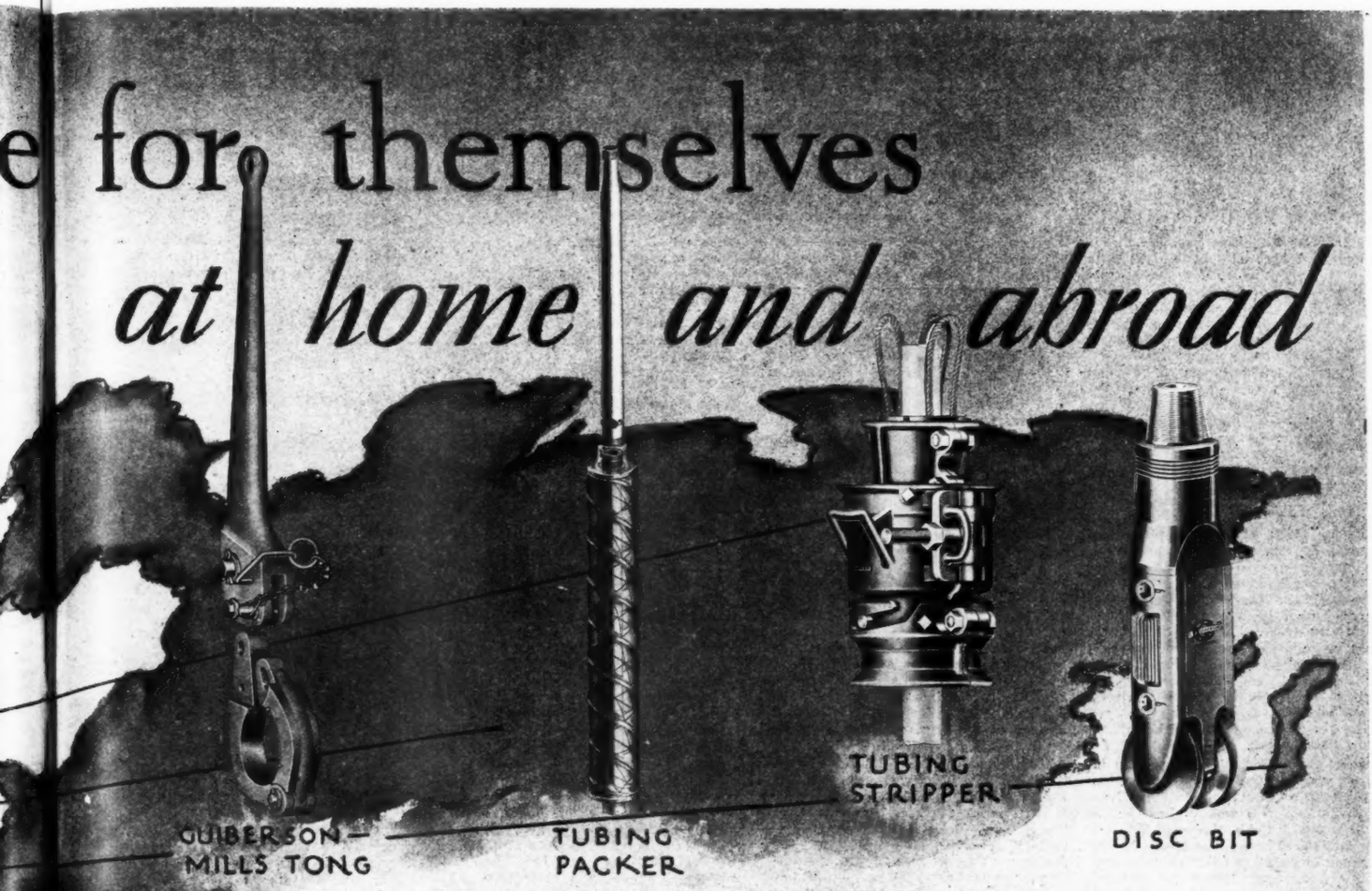


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**GUIBERSON**

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# Good Completions in Zwolle South Field

## Two 2,000-Bbl. Producers Enliven Otherwise Dull Week in Louisiana-Arkansas Fields. Wildcat Failures

By D. H. Bancroft
*Staff Correspondent, Louisiana-Arkansas*

SHREVEPORT, La., Dec. 8.—Zwolle was again the high light in the Louisiana fields this week, two wells in the so-called south extension, coming in as good producers from the top of the marl at around 2,300 feet. The first was Pelican Natural Gas Co.'s No. 6 Sabine Lumber Co., NE NE, Section 11-7-12, making 2,000 bbls. natural from 2,343 feet and the other was H. W. Perritt and others' No. 1 Bowman-Hicks, SW NE, Section 2-7-12, half a mile west and a quarter north of the Pelican well. It showed for about as good a well as the Pelican well from the same approximate depth. Both are in a very restricted area with plenty of vacant territory between them and the original producing area. Between the so-called "north extension," "east extension" and "south extension" Zwolle has assumed the appearance of a collection of isolated small pools—"pimples," the operators are calling them—separated by barren territory but all related. It is a situation reminiscent of Champagnolle and Urania.

### Gas Well in Mississippi

Jackson district of Mississippi was in the news with another gas well in Section 12-5-1e, Rankin County, across Pearl River from Jackson. It was Wallace Oil & Gas Co.'s No. 1 Cobb, SW cor. SE NE of the section. The well made 48,000,000 feet of gas in 24 hours from a total depth of 2,379 feet. One Mississippi wildcat was written off during the week when Alcorn Petroleum Co.'s No. 1 Matthews, SE SE, Section 14-2s-7, Alcorn County, was given up as a dry hole after several months of inactivity.

For that matter, failures were numerous among the wildcats. Gascon Oil Corp.'s No. 1 Morrow in Section 14-2s-4e, Avoyelles Parish, Louisiana, was abandoned at 2,420 feet as a dry hole with no show anywhere along the log. The Bienville Parish excitement occasioned last July by a test showing 10 feet of oil at 2,358 feet in Nichols and others' No. 1 McDermott, NE NE, Section 28-18-6, has subsided. There are three wells still drilling in Bienville, only one of them in what might be called the Gibsland district however, but when Triangle Drilling Co. and Ruston Drilling Co. who took over the Nichols well, abandoned it at 3,160 feet and Olds & Smith abandoned No. 1 Brice, SE SE, Section 15-8-6, at 2,230 feet as a duster, interest waned. Two wildcat locations, in Zwolle territory, were not even drilled. Boone, trustee, abandoned the location for No. 1 Turner in the NW NW, Section 4-7-11, in the "east extension" area of the field, and Zeke Lohman abandoned location for No. 1 Wyatt Lumber Co. in the NE SW, Section 18-4-11. A. H. Tarver and others' No. 2 Baker in Section 36-8-12, was reported a location in error. C. H. Teat and others' No. 1 Craig, NE NE, Section 25-8-12, in the "north extension" was a dry hole at 2,615 feet, 200 feet below the horizon of the discovery and later wells.

### Wildcat in Caddo Parish

Gooch and others of Kansas City and St. Louis, have rig up to drill No. 1 Foster in Section 29-15-16, Caddo Parish, 5 or 6 miles south of the east end of the Bethany gas field of Caddo—Panola County, Texas. This territory, during the last three or four years, has been fine-tooth-combed with geophysical instruments and before that had been sparsely drilled. The geophysical instruments revealed a structure but drilling has not developed any production, perhaps because the holes have not been drilled deep enough. The Greenwood gas district, just about as far north of Bethany as this location is south, was condemned at one time but it furnished much gas nevertheless. Bayou State Oil Corp.'s No. 5 Barr in Section 30-22-15, Hosston district of Caddo, pumped 10 bbls. initial from 1,121 feet and No. 6 is a location in the same quarter of the section.

Louisiana Oil Refining Corp.'s test for deep pay in the center, or slightly northeast of the center, of old Bellevue, failed to find oil or gas and was abandoned at 2,500 feet as a dry hole. It is No. 14-B Bodcaw in the SE SW, Section 11-19-11. Morgan's No. 11-B Kendrick, Section 22-19-11, cored the oolitic line from which his previous successes have produced at 1,784-90 feet and was scheduled for a drill stem test results of which have not been heard from.

Prairie Oil & Gas Co.'s test on the Slick block, in Claiborne Parish, No. 1 Shackelford in the SE NE, Section 30-23-5, is interesting. Fifteen miles east of Haynesville production, it topped the Blossom, from the producing sand in the Haynesville Pool, at 2,729 feet and Haynesville runs around 2,800-50 feet. Apparently it was not tested for Blossom sand production for there was no report of such, and it was drilling at 2,865 feet. It is to go 5,000-6,000 feet if necessary.

### Production of Pools

There was a falling off in daily average runs from practically every pool in the division this week, total runs of 95,540 bbls. being 780 bbls. less than last week. North Louisiana runs of 44,170 bbls. were almost stationary—55 bbls. under last week's average—but Arkansas' 51,370 bbls. was 525 bbls. under the average for the preceding period. Greatest differences were declines of 170 bbls. in Caddo light, 125 bbls. from Sarepta-Carterville, 360 bbls. in Smackover heavy and 110 bbls. in Urbana. The two new wells in the so-called south extension of Zwolle caused an increase of 240 bbls. in net runs from that pool. Daily average runs from the several pools were:

| | |
|---|---|
| **NORTH LOUISIANA** | |
| Caddo, light | 8,440 |
| Caddo, heavy | 2,855 |
| Homer | 3,350 |
| Haynesville | 5,230 |
| DeSoto-Red River | 2,760 |
| Elm Grove | 520 |
| Bellevue | 850 |
| Cotton Valley | 1,850 |
| Urania | 5,280 |
| Pleasant Hill | 450 |
| Sarepta-Carterville | 2,140 |
| Zwolle | 9,640 |
| Holly | 975 |
| Total North Louisiana | 44,170 |
| Week ending November 29 | 44,225 |
| Decrease | 55 |
| **ARKANSAS** | |
| El Dorado | 3,920 |
| Smackover, light | 4,790 |
| Smackover, heavy | 35,360 |
| Stephens | 880 |
| Nevada County | 1,030 |
| Lisbon | 890 |
| Champagnolle | 3,420 |
| Bradley | 60 |
| Mount Holly | 70 |
| Urbana | 950 |
| Total Arkansas | 51,370 |
| Week ending November 29 | 51,895 |
| Decrease | 525 |
| Both states | 95,540 |
| Week ending November 29 | 96,320 |
| Decrease | 780 |

### Good Gasser in DeSoto

Standard Oil Co.'s No. 1-B Dowling in the SW SW, Section 32-14-13, Holly district of DeSoto Parish, was another interesting feature of the week's developments. There never has been much gas in Holly but this well showed for about 30,000,000 feet with a spray of oil from 13 feet of broken sand at 2,813 feet and was being deepened. Location is north of what production Holly has made and

(Continued on Page 175)

## WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated.)

**NORTH LOUISIANA**

**BIENVILLE PARISH**

| Company, farm and location— | Remarks— |
|---|---|
| Carter & Dobbs' No. 1 White, 330 ft. N, 330 ft. W, SE cor. SE SE, Sec. 9-18-6 | S.D; W.O. 2,262 ft. |
| Coyle Bros.' No. 1 Lawhon, 300 ft. N, 300 ft. E, SW cor. SE NE, Sec. 15-16-8 | Drlg. 710 ft. |
| S. P. Borden's No. 1 Thomas, 330 ft. S, 330 ft. E, NW cor., Sec. 27-16-9 | Drlg. lime 4,350 ft. |

**BOSSIER PARISH**

| | |
|---|---|
| Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-23-14 | S.D. fuel 1,576 ft. |
| Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13 | S.D. repairing rig 1,100 ft. |

**CADDO PARISH**

| | |
|---|---|
| Gooch et al's No. 1 Foster, Sec. 29-15-16 | Rig up. |
| Tex.-La. Prod. Co.'s No. 1 French, 1,270 ft. N, 675 ft. E, SW cor. NW, Sec. 24-23-16 | D.S. stuck; T.D. 4,694 ft. |
| Tex.-La. Prod. Co.'s No. 1 Wall, 2,175 ft. N, 1,980 ft. W, SE cor., Sec. 33-23-16 | Drlg. hard lime 4,076 ft. |

**CALDWELL PARISH**

| | |
|---|---|
| Hudson et al's No. 1 Burton, Sec. 35-12-2e | Drlg. hard rock 2,437 ft. |

**CATAHOULA PARISH**

| | |
|---|---|
| National Drlg. Co.'s No. 1 Marsh McMillen, 70 ft. N, 100 ft. W, C, Sec. 24-9-6 | Cmtd. 6⅝-in. 2,796 ft. |

**CLAIBORNE PARISH**

| | |
|---|---|
| Baird Bros. et al's No. 1 Whittaker, 600 ft. N, 400 ft. W, SE cor. NE, Sec. 30-20-7 | S.D. 2,200 ft. |
| Baugh et al's No. 1 Alexander, 330 ft. S, 330 ft. W, NE cor., Sec. 27-20-8 | S.D. 2,200 ft. |
| Prairie O. & G. Co.'s No. 1 Shackelford, 331 ft. S, 327 ft. E, NW cor. SE NE, Sec. 30-23-5 | Top Blossom 2,729 ft; drlg. 2,-865 ft. |

**CONCORDIA PARISH**

| | |
|---|---|
| La. G. & F. Co.'s No. 2 Saunders, 788 ft. S, 2,155 ft. E, NE cor., Sec. 11-8-9, in Sec. 42-8-9 | Rig up. |
| Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e | Drlg. shale 3,600 ft. |

**DE SOTO PARISH**

| | |
|---|---|
| J. M. Bridges, tr.'s No. 1 Cook Land Co., 990 ft. W, 330 ft. S, NE cor., Sec. 16-10-11 | Began drlg. Nov. 22; cmtd. 10-in. 102 ft; drlg. 2,800 ft. |
| J. W. Clark's No. 1 Tidwell, 250 ft. S, 250 ft. E. NW cor. NW, Sec. 22-13-14 | Cored sand showing gas 1,653-57 ft; S.D. waiting for csg. |
| S. A. Guy's No. 1 Dowling Bros., 469 ft. E, 382 ft. S, NW cor. NE, Sec. 31-14-14 | S.D; sandy shale 1,354 ft. |
| Bud Harrell's No. 1 Horton, 450 ft. E, 150 ft. N, SW cor., Sec. 4-11-11 | S.D. 1,060 ft. |
| Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15 | Coring 1,757 ft. |
| C. D. Neff et al's No. 1 H. P. Dowling, 240 ft. N, 240 ft. W, SE cor., Sec. 18-13-14 | Drlg. 325 ft. |
| C. D. Neff et al's No. 1 Ramsey, 1,000 ft. W, 400 ft. S, NE cor. SE, Sec. 33-13-16 | Derrick. |

(Continued on Page 167)

## LOUISIANA-ARKANSAS PROVEN AREAS

(Rotary operations unless otherwise designated.)

**NORTH LOUISIANA**

**BOSSIER PARISH—BELLEVUE**

| Company, farm and location— | Remarks— |
|---|---|
| H. I. Morgan's No. 11 Kendrick, 200 ft. N, 600 ft. E, SW cor. NE SW, Sec. 22-19-11 | Cored oolitic lime 1,784-96 ft; arranging D.S. test. |

**BOSSIER PARISH—CARTER**

| | |
|---|---|
| Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor., Lot 17, in Lot 16, Sec. 31-23-11 | Hole full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft. |
| Palmer Corp.'s No. 2 Roberson, 330 ft. N, 330 ft. E, SW cor. NW NE, Sec. 26-23-12 | Derrick. |
| The Texas Co.'s No. 1 Pine Wood Lbr. Co., 1,650 ft. S, 300 ft. E, NW cor., Sec. 25-28-12 | Swbng. 10 bbls. oil and 7 bbls. S. W. 3,152 ft; W.O.S.R. |
| Tippett Drlg. Co.'s No. 3 Holmes, 330 ft. N, 330 ft. E, SW cor. NE NW, Sec. 36-23-12 | 300 ft. oil in hole; waiting on power; T.D. 3,130 ft. |

**BOSSIER PARISH—ELM GROVE**

| | |
|---|---|
| R. O. Roy's No. 1 Hunter, 660 ft. N, 660 ft. E, SW cor., Sec. 24-16-11 | 3-ft. sand showing oil 2,586 ft; cmtd. 6⅝-in. 2,546 ft. |

**BOSSIER PARISH—SLIGO**

| | |
|---|---|
| Palmer Corp.'s No. 1 Johnson, 660 ft. S, 660 ft. W, NE cor., Sec. 24-17-12 | Drlg. lime 2,563 ft. |
| Palmer Corp.'s No. 1 Schnitt, 660 ft. S, 660 ft. E, C, Sec. 14-17-12 | O.W.D.D; arranging to deepen 877 ft. |
| Woodley Pet. Co.'s No. 1 Sheppard, SE SW, Sec. 14-17-12 | Location. |

**CADDO PARISH—GREENWOOD**

| | |
|---|---|
| Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16 | Location. |
| Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,310 ft. S, 970 ft. E, NW cor., Sec. 17-16-16 | Location. |
| Junior O. & G. Co.'s No. 1 Brend, 1,980 ft. W, 1,320 ft. N, SE cor., Sec. 9-18-16 | Rig up. |

**CADDO PARISH—HOSSTON**

| | |
|---|---|
| Bayou State Oil Corp.'s No. 6 Barr, 470 ft. N, 425 ft. W, SE cor., SW, Sec. 30-22-15 | Cmtd. 6-in. 1,077 ft; W.O.S.R. 1-121 ft. |

**CADDO PARISH—OIL CITY**

| | |
|---|---|
| The Texas Co.'s No. 73 Levee Board, 1,642 ft. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16 | Location. |
| The Texas Co.'s No. 74 Levee Board, 1,600 ft. S, 200 ft. W, NE cor., Sec. 33-21-16 | W.O.S.R; 200 ft. oil; T.D. 1,-838 ft. |
| The Texas Co.'s No. 75 Levee Board, 2,450 ft. S, 224 ft. W, NE cor., Sec. 33-21-16 | Derrick. |

**CLAIBORNE PARISH—HOMER**

| | |
|---|---|
| La. Oil Ref. Corp.'s No. 1 Langston, 660 ft. S, 523 ft. E, NW cor. SW SW, Sec. 19-21-7 | Cmtd. 12½-in. 645 ft; drlg. 1,-470 ft. |

(Continued on Page 169)

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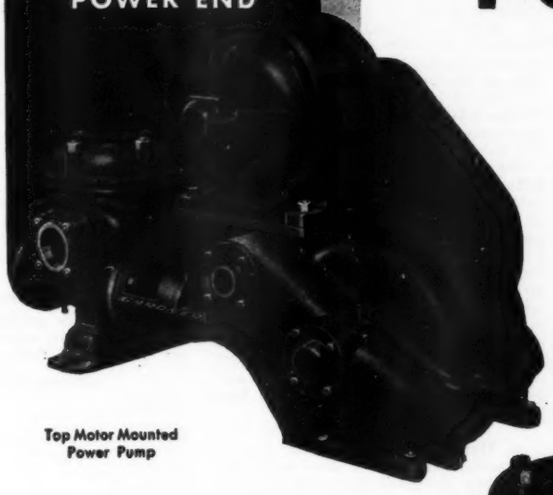

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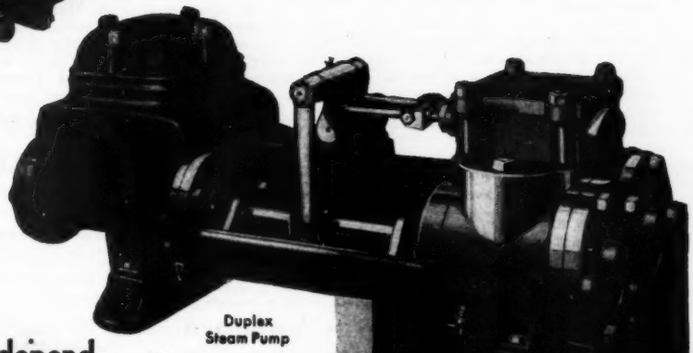

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# Shepherds Mott Gets Its First Oil Well

## Third Test Drilled in South Central Matagorda County Flows at Rate of 350 Bbls. Daily. Geophysical Discovery

By Neil Williams
*Staff Correspondent, Gulf Coast Fields*

HOUSTON, Tex., Dec. 8.—Shepherds Mott, south central Matagorda County, for years looked upon as a favorable prospect and on which first drilling was started as early as 1918, got its first oil well Saturday, adding another new field for the Gulf Coast. The discovery well was Cockburn Oil Corp.'s No. 2 Hawkins, which Saturday night was flowing at the rate of 350 bbls. daily. At that time it had not entirely cleaned itself and as it had been in just a few hours it was not possible to make any definite statements as to what the well was good for.

The well was producing from a broken formation of sand and shale at a total depth of 5,244 feet with 60 feet of 4½-inch screen in the hole. A string of 6-inch casing is set at 5,180 feet. The well was making considerable gas and production seemed to be increasing steadily. Early tests of the oil showed it to be clean and approximately 39 degrees.

This is the third test drilled at Shepherds Mott by the joint interests of Cockburn Oil Corp., George Crossland, Smith & Gates, Inc., and the North American Exploration Co., which hold leases in the area comprising approximately 5,000 acres. It is located 2,700 feet west and 6,336 feet south of the north corner of the Farnham Fry Survey, which is supposed to overlie the northernmost of "twin" salt upthrusts, which are indicated in a torsion balance survey by the North American Exploration Co. in 1928. So far no salt has been found in any of the drilling although Shepherds Mott generally is accepted as a salt dome.

Although twin upthrusts of salt have been indicated by the geophysical exploration, there is believed to be just one large salt plug, the upthrusts being in the form of two small peaks approximately 1½ miles apart. The dome prospect is located in the Farnham Fry, Daniel McCarty and J. Dwyer Surveys, which area is approximately 12 miles southeast of Bay City and the same distance inland. It sometimes is called Shepherds Mound.

The other two tests drilled by these interests were Cockburn Oil Corp.'s No. 1 Hawkins, approximately 2,700 feet to the east of No. 1, and Crossland and associates' No. 1 Hawkins, located on the supposed southern one of the twin upthrusts. The latter was 5,090 feet northeast and 220 feet northwest of the south corner of the Daniel McCarthy Survey, about a mile and a half from the Fry Survey tests. The former was drilled into heaving shale to 6,151 feet and abandoned in July, 1930, while the latter was quit in July, 1920, after drilling to a total depth of 5,260 feet. This test, as in some earlier drilling in the area, encountered several interesting gas and oil shows. The northernmost of the salt peaks is indicated as being somewhat smaller but deeper than its "twin."

Although Shepherds Mott as a Salt dome prospect is commonly looked upon as a geophysical discovery, indications of an important uplift are noticed from the surface and as far back as early oil developments on the Gulf Coast Shepherds Mott was considered a favorable area. In 1918 Prof. W. F. Cummings, then of the geological staff of the Rio Bravo Oil Co., reported to his company that there was a dome there. Based on this report, the company made location for its No. 1 Haskins, approximately a mile to the south of the present producer. This test had gas showings at 1,657 feet, 1,884 feet and 2,860 feet, and oil showings at 2,057 feet, 2,388 feet and at 4,050 feet. The Rio Bravo Oil Co. abandoned the test and the lease after drilling to only 2,991 feet and the hole was deepened to 4,050 feet by the Commonwealth Oil Development Co. in which company Mr. Crossland, one of the present operators, was interested. At that depth a twistoff resulted in this company abandoning the test as a junked hole.

On the extreme southwest side of where the dome now is supposed to lie and a mile and a quarter to the southwest of the deep test abandoned in 1929 by Crossland and associates, the ompany then operating as the Marland Oil Co. drilled No. 1 Murphy to a total depth of 5,478 feet, where it was abandoned. In both these old tests, as well as in several other old tests, the Miocene and Oligocene formations were found high. Approximately a dozen tests have been drilled within that area.

### Citrus Grove Wildcat

Proving up of the Shepherds Mott area for production follows within three weeks the gas discovery in a wildcat on another geophysical salt dome prospect just a few miles distant in Matagorda County. That wildcat, Empire Gas & Fuel Co.'s No. 1 Boker, J. J. Criswell Survey, at Citrus Grove, blew out from a sand at a total depth of 6,252 feet. After blowing for several days out of control, the gas was successfully killed and now preparations are being made to test the sand. The drill stem is stuck in the hole but an attempt will be made to test through the drill stem.

The Cockburn Oil Corp., which controls Shepherds Mott, also is credited with the geophysical discovery of Citrus Grove but turned the acreage to the Empire Gas & Fuel Co. for development.

### West of Refugio

A mile westward extension of the 3,700-foot producing horizon of the Refugio Field was another interesting completion development the past week. This extension was by L. L. Smith's No. 1 L. M. Rodgers, located in the Manuel Arocha Survey, 600 feet northwest along the east bank of Medio Creek from the fork of Medio and Blanco Creeks and 150 feet east of the east bank, came in flowing 1,100 bbls. daily with 500 pounds pressure. The well since has declined to 500 bbls. daily on a quarter-inch choke.

There were two other completions at Refugio and at the close of the week a half dozen other operations were testing oil sands. Saxet Oil Co.'s No. 5-A Wilson Heard, located in the old field, was deepened to 3,683 feet and completed for 500 bbls. on a five-sixteenths-inch choke, 700 pounds pressure, with 22 feet of screen. In the 6,400-foot horizon on the east side of the field, Luling Oil & Gas Co.'s No. 1 Talmon, Block 104, flowed initially 30 bbls. of 62 gravity oil 2,325 pounds pressure, sand at 6,446-58 feet, but has increased its flow to 150 bbls. daily.

### Other Completions

At Humble, Cullen & West made a substantial extension of deep production on the far northeast flank of the dome in their No. 3 Burt, which is flowing an estimated 1,000 to 1,200 bbls. of oil daily from sandy shale at a total depth of 4,866 feet. This sector is a part of the dome around which there has been comparatively little drilling.

Among other completions were two additional wells at the new Esperson Field, western Liberty County. These were Cranfill-Reynolds Co.'s Nos. 6 and 7 Moores Bluff. No. 6 set 44 feet of screen in sand at 2,332 feet and flowed 180 bbls. daily. No. 7 set four joints of screen at 2,287 feet and flowed 74 bbls. daily. Both mark southward extensions of the proved area.

At Liberty, Trinity Petroleum Co. got a 10-bbl. pumper in its No. 1 E. W. Pickett in sand at 3,420 feet, and Sun Oil Co. deepened its No. 17 Mitchell, a former shallow well at 785 feet, to 896 feet, where it was put on the pump for 5 bbls. Yount Lee Oil Co.'s No. 88 Gladys City, Spindletop, a workover, was deepened to 3,632 feet where it flowed 50 bbls. of fluid, 40 per cent oil. Orange Petroleum Co.'s No. 13 Chesson, Orange, flowed 160 bbls. fluid, 120 bbls. net oil, 3,163 feet.

### Gulf Coast Production

Daily average production of the pools in the Gulf Coast area for the week ending December 6, follows:

| SOUTHEAST TEXAS | |
|---|---|
| Allen | 271 |
| Barbers Hill | 24,434 |
| Batson | 1,102 |
| Big Creek | 3,260 |
| Blue Ridge | 1,558 |
| Brenham | 150 |
| Boling | 856 |
| Clay Creek | 1,758 |
| Damon Mound | 578 |
| DeWalt | 11,988 |
| Esperson (Sheeks) | 4,011 |
| Fannett | 558 |
| Goose Creek | 4,469 |
| Hankamer | 2,095 |
| High Island | 817 |
| Hull | 7,805 |
| Humble | 11,316 |
| Jasper County | 15 |
| Lost Lake | 382 |
| Markham | 208 |
| Moss Bluff | 60 |
| Mykawa | 212 |
| Nash | 232 |
| North Dayton | 1,115 |
| Orange | 2,010 |
| Orchard | 1,970 |
| Pierce Junction | 7,635 |
| Port Neches | 1,195 |
| Raccoon Bend | 8,946 |
| Refugio | 27,954 |
| Saratoga | 1,625 |
| Sour Lake | 2,381 |
| South Liberty | 2,917 |
| Spindletop | 14,174 |
| West Columbia | 4,807 |
| Total Southeast Texas | 154,874 |
| Week ending November 29 | 154,346 |
| Increase | 528 |

| SOUTH LOUISIANA | |
|---|---|
| Anse La Butte | 32 |
| Bayou Blue | 42 |
| Bayou Bouillon | 133 |
| Black Bayou | 1,170 |
| Edgerly | 382 |
| Jennings | 1,991 |
| Hackberry | 4,795 |
| Lake Barre | 2,182 |
| Lake Pelto | 88 |
| Lockport | 4,287 |
| Port Barre | 2,221 |
| Sorrento | 65 |
| Starks | 646 |
| Sulphur | 2,300 |
| Sweet Lake | 1,153 |
| Vinton | 5,345 |
| Welsh | 121 |
| White Castle | 1,057 |
| Total South Louisiana | 28,010 |
| Week ending November 29 | 28,084 |
| Decrease | 74 |
| Total Gulf Coast | 182,884 |
| Week ending November 29 | 182,430 |
| Increase | 454 |

### Deep Tests Abandoned

The Texas Company during the week abandoned its No. 5 State, a deep test on its Calliou Island Dome in the Coastal marshes of Terrebonne Parish. This test was quit at 5,665 feet in salt topped at

(Continued on Page 174)

## GULF COAST FIELDS AND WILDCATS

**Week Ending December 6**

**All Rotary**

**BARBERS HILL—CHAMBERS COUNTY**

Mills Bennet Prod. Co.'s No. 1-B Barber, north.....Drlg. salt 2,465 ft.
Mills Bennett Prod. Co.'s No. 10 Barrow (workover)....Drlg. shale and lime 5,501 ft.
Mills Bennett Prod. Co.'s No. 3 Gulf Fisher, south .....Drlg. lime rock 2,794 ft.
Mills Bennett Prod. Co.'s No. 1 Gulf-Smith .....Building derrick.
Humble Oil & Ref. Co.'s No. 6 fee, west .....Total depth 6,609 ft.; swabbing salt water.
Humphreys Corp.'s No. 2-B Barber, north .....Anhydrite 1,141-84 ft.; drill stem stuck.
Humphreys Corp.'s No. 6-A Barber, northwest .....Oil sand 5,281-5,300 ft.; cmtd. csg.
Humphreys Corp.'s No. 1 Louise Fitzgerald, north.....Drlg. salt 1,501 ft.
Humphreys Corp.'s No. 1 Morgan (workover) .....Total depth 6,404 ft.; trying to sidetrack 6,259 ft.
Humphreys Corp.'s No. 10-A Kirby (workover) .....Sidetracking 3,428 ft.
Humphreys Corp.'s No. 1 Winfree, west .....Drlg. hard lime 5,020 ft.
McAlbert Oil Co.'s No. 2-A Riggins, southeast .....Drlg. shale 1,456 ft.
Republic Prod. Co.'s No. 3 Kirby (workover) .....Total depth 6,700 ft.; will pump.
Sinclair Oil & Gas Co.'s No. 2 Smith, west .....Sandy shale showing oil 5,604 ft.; setting 137 ft. of screen.
Sun Oil Co.'s No. 5 Chambers (workover) .....Coring 5,472 ft.
Sun Oil Co.'s No. 7 Chambers, south.....Shale 3,147 ft.; set casing.
Sun Oil Co.'s No. 12 Wilburn fee, east .....Shale 4,987 ft.
Sun Oil Co.'s No. 13 Wilburn fee, east .....Waiting on orders; fishing for milling tool.
The Texas Company's No. 1 Williams, southwest.....Drlg. sand and shale showing oil and gas 6,674 ft.
The Texas Company's No. 1 Winfree, west .....Drlg. hard lime, shale and rock 4,934 ft.
Yount Lee Oil Co.'s No. 1 Hindman, southwest .....Drlg. sandy shale 6,511 ft.
Yount Lee Oil Co.'s No. 17 Chambers, south .....Drlg. hard lime 1,140 ft.
Yount Lee Oil Co.'s No. 3 Fisher, southwest .....Total depth 7,024 ft.; set 5 jts. screen 6,676 ft.; to pump.
Yount Lee Oil Co.'s No. 6 Phillips, east .....Waiting on orders.
Yount Lee Oil Co.'s No. 1 Winfree, west .....Oil sand 3,573 ft.; will set screen.

**RACCOON BEND—AUSTIN COUNTY**

Humble & Valley's No. 3-B Hardy .....Drlg. sand 1,130 ft.
Humble & Valley's No. 9 Mueller .....Derrick.
Humble & Valley's No. 7 Payne .....Derrick.
Humble & Valley's No. 8 Payne .....Derrick.
Humble & Valley's No. 6 Saunders .....Derrick.
Humble & Valley's No. 3 Sherrod .....Derrick.
Humble & Valley's No. 6 Woodley .....Derrick.
Humble & Valley's No. 7 Woodley .....Derrick.
Humble & Valley's No. 8 Woodley .....Derrick.
Humble & Valley's No. 9 Woodley .....Derrick.
Humble & Valley's No. 10 Woodley .....Swabbing 3,488 ft.; showing oil.

**HUMBLE—HARRIS COUNTY**

Cullen West's No. 5 Lee, south .....Total depth 4,600 ft.; reaming.
John Deering's No. 2 Bennett .....Drlg. sand and shale 4,069 ft.
P. S. Griffith's No. 1 fee .....Drlg. gumbo 3,858 ft.
LaRue, trustee's No. 1 Crane, northwest .....Derrick.
M. LaRue's No. 1 Tuffly, northwest .....Gumbo 1,405 ft.; shut down.
Southern Coastal Oil Co.'s No. 2 Perkins .....Drlg. sand and boulders 2,520 ft.
South Texas Pet. Co.'s No. 3 Burt, east .....Comp. flowing 1,200 bbls. 4,866 ft.
Sun Oil Co.'s No. 13 Bender (workover) .....Drlg. sand 4,589 ft.
Sun Oil Co.'s No. 16 Bender .....Derrick.
Sun Oil Co.'s No. 18 Bender .....Drlg. shale 4,220 ft.

(Continued on Page 165)

# Solve Your Guiding, Floating, and All Cementing Problems—as they come—with —Baker Cement Equipment

## Baker Cement Float Collar and Baker Cement Guide Shoe

For the safe guiding and floating of the shorter lengths of casing, say up up to 3,000 feet, the Baker Cement Float Collar and the Baker Cement Guide Shoe, form the ideal combination. The same combination may also be used for a cement job, the Float Collar acting as a stop for the cement plug.

The inherent strength in the materials used in all Baker Cement Equipment is so much greater than that of the casing, that there need be no cencern about any possible failure. The Guide will withstand a load of 350 tons without even cracking. The Valve Seat in the Float Collar will stand a load of 180 tons.

## Baker Cement Float Collar and HIGH Cement Whirler Shoe

This combination of Baker Cement Equipment is unusually effective because of the principles of the Baker Cement Whirler Shoe being added to the advantages of the HIGH Side Hole Cement Float Shoe, which makes it adaptable to conditions which it would be difficult to handle in any other way.

When, for instance, a very long and heavy string is being run, and it is desired to do a cement job, the bottom of the hole being soft or compressible —or possibly full of cavings—the Slots of the HIGH Cement Whirler Shoe being 28 inches above the bottom of the guide assures breaking circulation without difficulty, and securing a satisfactory cement job, with full coverage around the Shoe.

## Baker Cement Float Collar and Baker Cement Whirler Shoe

For the longer strings of casing, it is common practice among careful operators to run both the Baker Cement Float Collar and the Baker Cement Whirler Shoe, the latter also containing the Baker-Designed Float Valve. This gives extra protection to the string in floating, even though some unforeseen circumstance should nullify the floating properties of the Cement Whirler Shoe.

In cementing, the Baker Cement Whirler Shoe gives an unusually effective flow of the cement, the Slots serving to give a whirling, swirling, spiral motion which assures full coverage around the Shoe without any possibility of channeling. The Cement Float Collar acts as a stop for the plug.

## 2 Baker Cement Float Collars and Baker Cement Guide Shoe

The opinions of operators vary, as well as the field practice in various parts of the Country, but Baker Cement Equipment lends itself admirably to these differences.

In some sections, for instance, when long, heavy strings are being run, it is the practice to install two Baker Cement Float Collars at varying positions in the string, and then use the Baker Cement Guide Casing Shoe on the lower end.

This not only gives a perfect guide, but it also provides ample floating capacity to protect even the longest string.

No matter what your preferences, you will be able to satisfy them with Baker Cement Equipment.

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Baker Cement Equipment places the operator in a position to solve any Floating, Guiding, or Cementing problem without difficulty. It is just as far ahead of cast-iron or equipment containing other metals, for these purposes, as an airplane is ahead of an oxcart. Send for the special Baker Cement Equipment Catalog—right now—and get the facts about this better equipment.

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# Gas Pressure Declines in Pettus Pool

## Potential Production Drops Sharply as a Result. Field Work Quiet With a Few Good Wells In

By B. D. Stevenson
*Staff Correspondent, Southwest Texas Fields*

SAN ANTONIO, Tex., Dec. 8.—Several monuments were set up in Southwest Texas last week and there was plenty of interesting developments but no important new pools added to the list. Among the important developments is the disclosure that the new potential gauge of the Pettus Field shows that the gas pressure has been going off badly and the potential dropped seriously. E. R. Thomas' (Frasher & Schoolfield) No. 1 Duval Land Co., south of the Schoolfield-O'Byrne Pool in Duval County, gauged 500 bbls. in 10 hours on a five-eighths inch choke at 2,308 feet which makes it a good well and an important extension to the field.

It looks like Houston Oil Co. had a chance to bring in a deep producer in the Agua Dulce Field in Nueces County to make up for the failure in the two deep tests in the Cartwright Field in Live Oak County, but Penn Oil Co.'s No. 1 Junker in DeWitt County on a high powered block is down 5,340 feet, with no production, though it has proven a structure which may yield oil in other tests.

### Kerr County Test

L. L. Evans' No. 1 Love in Kerr County will probably be ready to resume this week. Late last week it was counted that the derrick would be up the first of this week. Bad roads made it impossible to move in material as rapidly as it had been expected and among other things the truck with the main sill was stuck in the mud. It was this well that created a lot of excitement when it developed a gas and oil that caught fire and burned the derrick down. It is in such a remote place and so far from any production that the showing of oil and gas was extra important. Total depth of the hole at the same time the derrick burned down and the hole bridged was 3,374 feet and the cable tools are in the hole. Just what condition things are in when they run the tools back in this week is the next question. It may be a bad fishing job. The well had its first real good showing at 2,452 feet where it was nearly enough to make a small commercial well.

The Magnolia Petroleum Co. paid $7,000 for 80 acres a mile southeast of the test in Cassanda Winn Survey No. 1,759.

### Pettus Gas Pressure Off

Meetings of producers in the Pettus Townsite Pool met in Houston last week to discuss the production situation. Three wells in the pool which have been making a good deal of gas and quite a little gasoline have not been under proration and have been wasting considerable natural gas in order to get the gasoline. These three wells and the amount of gas and gasoline they were making are as follows:

| Company and location— | Gasoline bbls. | Natural gas feet |
|---|---|---|
| Glasscock Bros., Blk. 24 | 35 | 6,268,000 |
| S. R. C. Oil Co., Blk. 19 | 112 | 3,553,000 |
| Houston Oil, Blk. 23 | 124 | 2,700,000 |

The last proration gauge shows a new potential of 7,938 bbls. as compared with 11,408 bbls. on October 26. The three wells above mentioned have not been included heretofore in the proration gauge. Now the other producers in the field object and hence the conference in Houston which, as yet, has resulted in no tangible agreement. On the new gauge every well in the townsite pool except one showed a lower potential than on October 26. The one exception was Union Producing Co.'s No. 19 Ray, which shows a slight increase. A total of 19 wells are included in the new proration gauge in the townsite pool. The other two pools in the area have not been gauged. There are only a few wells in each pool.

During November the Ray-McKinney Pool produced a total of 79,628 bbls. or a daily average of 2,655 bbls. and its allowable under proration is 2,700 bbls. daily. During the same time the Cosden Pool produced 34,696 bbls. or a daily average of 1,156 bbls. and its daily allowable is 1,250 bbls.

### Balcones Fault

Four ordinary sized wells were completed in the Darst Creek Pool last week and Humble Oil & Refining Co.'s No. 1-B Sue Denman on the east side of the pool turned out to be a small well of around 35 bbls.

In Williamson County in the Chapman Pool Trapshooter Reilly got a 1,000-bbl. well in his No. 3 M. V. Lawrence at 1,910 feet.

With the exception of the abandonment of some wildcats that have occupied more or less attention for some time the Balcones fault zone territory was a trifle colorless last week. Champion and others abandoned their No. 1 H. B. Smith in the northern part of Bastrop County at 2,455 feet with top of the Edwards lime at 2,396 feet and showing for a sulphur water well. At about 1,935 feet this test had shown quite a little oil in the Austin chalk and created a little excitement for a time. At total depth of 1,941 feet it tested 37 gravity oil and possibly could have got inside the line of being a commercial well. Whether the operators will make an effort to develop this shallower production has not been announced.

### Darst Creek

Daily average pipe line runs from the Darst Creek Field for the week ending December 2 was 36,225 bbls. The allowable under the present proration is 30,021 bbls. daily. The proration and run of the field now is by agreement of operators since an injunction by the Louisiana Oil & Refining Co. is still in force. The field has settled, however, and the expectation is that there will be no more trouble. The field is owned almost entirely by major companies. For a time the proration agreements were being broken and reinstated again too rapidly to be kept track of. Some of the excess in the 36,225 bbls. is likely to have come from wells of operators who did not run their full allowance in the weeks before and are now allowed to catch up.

### Injunction Proceedings

It will be about the middle of January before the district court at Austin can hear the injunction proceedings which are now holding up proration in certain Texas fields. In fact it may be late in January. Assistant Attorney General Lawrence at Austin said recently that he had taken the matter up with Judge Calhoun of the fifty-third district court with reference to the Danciger case which ties up Panhandle proration. The court indicated that it could not reach the case before early in January and was asked to set the case if possible by January 12. But by that time there will be a new attorney general in office and he may want time to study the case. This Danciger case is the one that is attracting most attention and as other cases such as that at Darst Creek raise exactly the same questions as to constitutionality, the hearing and decision in the others awaits the Danciger decision.

### Southwest Texas Production

Daily average production for the pools in the Southwest Texas area for the week ending December 6, follows:

| | |
|---|---|
| Bexar | 190 |
| Branyon | 21 |
| Bruner | 15,174 |
| Buchanan | 137 |
| Chapman | 3,483 |
| Dale | 276 |
| Duval | 240 |
| Darst Creek | 36,034 |
| Kingsville | 120 |
| Larremore | 20 |
| Luling | 9,480 |
| Lytton Springs | 1,067 |
| Manford | 250 |
| McMullen | 26 |
| Medina | 22 |
| Miranda | 14,218 |
| Normanna | 30 |
| Pettus | 8,384 |
| Saxet | 134 |
| Somerset | 1,464 |
| Yoast | 285 |
| Total Southwest Texas | 91,049 |
| Week ending November 29 | 89,325 |
| Increase | 1,724 |

### Balcones Wildcats

In the northern end of the Balcones fault zone and south of the Brazos River quiet prevails. Williamson County is doing more than most of the others. In Bastrop County two tests were abandoned last week and this leaves three wildcats in the county and two of those standing. In Milam County where there are seven tests left since the abandonment of the Birdwell and others' No. 1 Coffield

(Continued on Page 174)

## WILDCAT OPERATIONS IN SOUTHWEST TEXAS

### BLANCO COUNTY

| Company, farm and location— | Remarks: |
|---|---|
| Ben H. Ashe Pet. Corp.'s No. 1 Glasscock, moving in to drill on leases out of the Rodson block north of Blanco City | Location. |
| Hardy-Bitton's No. 1 McMillan | T. D. 570 ft.; standing. |
| Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155 | T. D. 660 ft.; standing. |
| McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City | T. D. 550 ft.; shut down. |
| J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 23 | T. D. 985 ft.; fishing. |
| G. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,250 ft. to N line, Sur. No. 94 | T. D. 375 ft.; standing. |

### BASTROP COUNTY

| | |
|---|---|
| Pacific Oil & Gas Co.'s No. 1 J. M. Litton, 150 ft. N and W lines of tract | T. D. 2,440 ft.; drlg. Georgetown. |
| Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville | T. D. 375 ft.; standing. |
| Champion et al's No. 1 Smith, 2,541 ft. to NW line, 663 ft. to SW line of tract, T. Standifer Sur. | T. D. 2,455 ft.; dry and abnd. |
| R. S. Bolling's No. 1 McWilliams, 150 ft. from N line, 1,111 ft. from W line of Wm. McWilliams tract, Glasscock Sur. | T. D. 2,240 ft.; shut down. |

### BROOKS COUNTY

| | |
|---|---|
| Ed East's No. 3 B. Garcia, 150 ft. from N and W lines of Blk. 5, Share A-1, Las Mastena y Gonsalene grant | Location. |

### BEE COUNTY

| | |
|---|---|
| William F. Morgan and Independent Oil & Gas Co.'s No. 1 Quincy, C Blk. 9 of 11,000-ac. Quincy Subd. of Bee County | T. D. 5,880 ft.; drlg. |
| Huribut et al's No. 1 Mrs. D. Chestnut | T. D. 5,010 ft.; shut down. |
| E. S. Price's No. 1 Weiss, 200 ft. each way out of NW cor. of B.&B. Sur. | T. D. 4,423 ft.; preparing to swab. |
| E. S. Price's No. 2 Weiss, 900 ft. due SW of No. 1 Weiss, B.&B. Sur. | T. D. 4,462 ft.; circulating mud. |
| E. S. Price's No. 3 Weiss, 900 ft. due NE of No. 1 Weiss | Location. |
| The Texas Company's No. 1 McCampbell, 150 ft. from N and E lines of 161-ac. tract, R. Pena Sur. | Location. |

(Continued on Page 170)

## SOUTHWEST TEXAS PROVEN AREAS

### DOBROWOLSKI POOL—BEXAR COUNTY

| Company, farm and location— | Remarks: |
|---|---|
| Morgan Bros.' No. 3 Masterson, 300 ft. S of No. 2 Masterson, Miguel Gortaris Sur. | T. D. 550 ft.; set csg. |
| F. H. Eckert's No. 1 Dobrowolski, 400 ft. from W line, 150 ft. from S line of lease, Sur. No. 52 | Location. |
| W. R. Swearingen's No. 2 Halberdier, 300 ft. SE of No. 1 J. Perege Sur. | T. D. 460 ft.; standing. |
| A. J. Swearingen's No. 6 Sandemer, 600 ft. S of No. 1, M. Manchaca Sur. | Location. |
| A. J. Swearingen's No. 7 Sandemer, 300 ft. S of No. 6, M. Manchaca Sur. | Location. |

### DARST CREEK FIELD—GUADALUPE COUNTY

| | |
|---|---|
| Gulf Prod. Co.'s No. 5 Tadlock, 300 ft. S of No. 3, 150 ft. from W line | T. D. 3,640 ft.; completed for 251 bbls., 9 per cent water. |
| Gulf Production Co.'s No. 6 Tadlock, 150 ft. N line of lease, 300 ft. E of No. 4 | Location. |
| Gulf Prod. Co.'s No. 12 Dix-McKean, 450 ft. out of NW cor. of lease | T. D. 2,550 ft.; waiting on cement. |
| Gulf Prod. Co.'s No. 13 Dix-McKean, 300 ft. from No. 14, 150 ft. from E line | T. D. 45 ft.; drlg. |
| Gulf Prod. Co.'s No. 14 Dix-McKean, 300 ft. from No. 5, 150 ft. from E line | T. D. 40 ft.; drlg. |
| Gulf Prod. Co.'s No. 10 Posey-Baker, direct offset to No. 4 Annie Knodel of Magnolia Pet. Co. | T. D. 322 ft.; drlg. |
| Humble Oil & Ref. Co.'s No. 1-B Sue Denman, 150 ft. from the N and W lines of lease, in the extreme NE cor. of the J. C. Darst Sur. | T. D. 2,647 ft.; bailing. |
| Louisiana Oil & Refining Co.'s No. 5 Dix-McKean, 456 ft. SW line of lease, 385 ft. S of No. 6 | T. D. 2,485 ft.; drlg. |
| Louisiana Oil & Refining Co.'s No. 6 Dix-McKean, 450 ft. SW line and 980 ft. NW line of lease | T. D. 2,560 ft.; set csg. |
| Magnolia Petroleum Co.'s No. 15 Thomas-Dix, offset to No. 4 Klein | T. D. 390 ft.; drlg. |
| Magnolia Petroleum Co.'s No. 5 Klein | T. D. 1,210 ft.; drlg. |
| Magnolia Petroleum Co.'s No. 4 Klein, 300 ft. W of No. 1, 150 ft. from NW line of lease, Robinson Sur. | T. D. 2,634 ft.; preparing to pump. |
| The Texas Company's No. 6-A Knoblock, 750 ft. from SW line, 600 ft. from SE line of lease, Robinson Sur. | T. D. 2,477 ft.; completed pumping 1,075 bbls. |

(Continued on Page 171)

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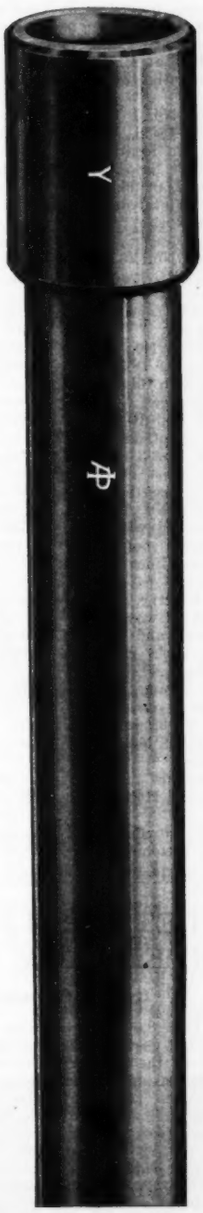


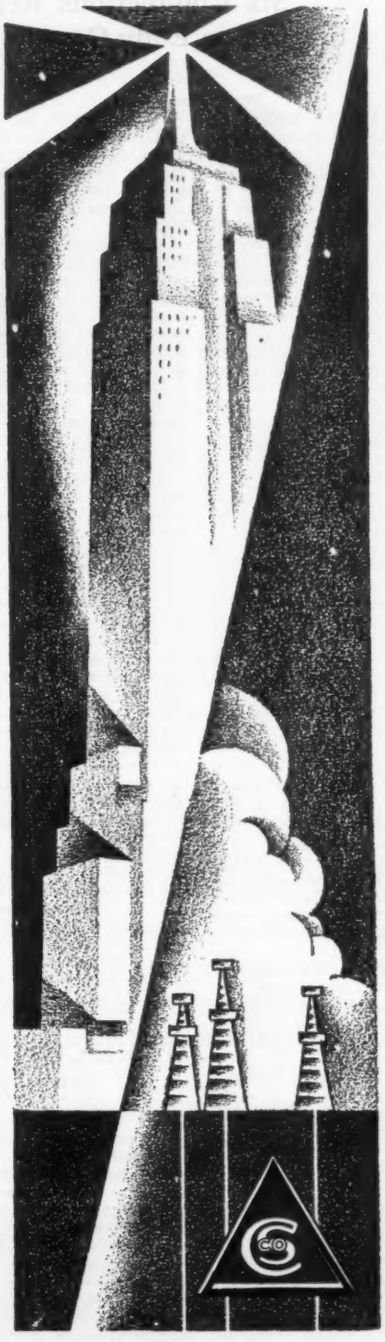

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# CONTINENTAL

# Hobbs Appears Nearing Edge on West

## Six Completions Reported and Ten Now Drilling. New Operation in Eddy County. To Resume on Weld County, Colorado, Test

By Tolbert R. Ingram
*Staff Correspondent, Rocky Mountain Area*

DENVER, Colo., Dec. 9.—Drilling operations in the Rocky Mountain area are showing a considerable decrease due to wells shutting down for the winter in the mountain districts, the approaching completion of the development program in the Hobbs Pool in New Mexico and the small number of new locations being made.

In the Hobbs Pool six wells were completed, of which four were outside wells, and 10 wells are drilling. The productive area was extended one-third of a mile to the west, but appears to be drawing to the edge. In the Eunice area, the Ohio Oil Co.'s No. 1 State-McDonald was completed as a 23,000,000-foot gas well after plugging off bottom water. One new operation was reported in Eddy County.

In Colorado final preparations are being made by the Platte Valley Petroleum Co. to deepen its discovery well on the Greasewood Dome in Weld County. One well in Routt County, for which rig has been up for a year, has begun drilling, and a deal was made to complete the Kuykendall Oil Corp.'s Sundance test in Pueblo County.

The Midwest's test to the granite in Salt Creek made 1,949 bbls. of 25.7 degrees gravity crude from the Tensleep after plugging back and completing, a slight increase over what it did when originally drilled.

### NEW MEXICO

#### Hobbs Pool—Lea County

The potential production of the Hobbs Pool on December 1, as established by the executive committee in charge of proration, was 1,010,358 bbls. daily from 130 wells on 116 units of 40 acres each. This compares with 973,183 bbls. from 122 wells on 109 units on November 15, an increase of 37,175 bbls., 8 wells and 7 units. The allowable outlet for the first half of December was put at 30,031 bbls. daily, as against 29,867 bbls. for the last half of November.

Six completions in the Hobbs Pool the past week reduced the number of drilling wells to 10, including 2 several miles out from production. Four of the six completions were outside wells and marked slight extensions of the productive area, the most important being on the western side one-third of a mile out from the nearest producer. Another week passed without any new locations being made and the drilling campaign started last spring is nearing its end.

The most important of the outpost completions was the Humble Oil & Refining Co.'s No. 3-A State, C NW SE, Section 25-18-37, a little more than one-third of a mile to the west of its No. 1-A State, the nearest producer. It was drilled to 4,220 feet and 3-inch was run to 4,204 feet. The potential was placed at 2,786 bbls. of oil and 3,000,000 feet of gas per day. The structure is dipping rapidly in that direction and the indications are production will not be found very much farther west. Top of the brown lime was found 767 feet above sea level compared with 847 feet in the same company's No. 1-A State, in the NE cor. SE, Section 25, one-third of a mile to the east, a dip of 80 feet.

The Humble's No. 2-A State, SE cor., Section 25-18-37, one-third of a mile to the southeast of No. 3-A State, and also an outside well, was completed at 4,230 feet and 3-inch tubing was run to 4,198 feet. It was given a potential of 3,629 bbls. of oil and 3,500,000 feet of gas.

Ohio Oil Co.'s No. 4 State, SW cor., Section 30-18-38, an offset on the east to Humble's No. 2-A State, proved to be about the same kind of a well. Top of the pay was at 4,140 feet and was drilled to 4,215 feet. The 3-inch is at 4,170 feet and it was given a potential of 3,694 bbls.

Mid-Continent Oil Co.'s No. 1 Fowler, NE NW NW, Section 31-18-38, also an outside well and about two locations to the southeast of the Ohio's No. 4 State, was given a potential of 2,592 bbls. and 4,000,000 feet of gas at a total depth of 4,224 feet. The 3-inch was run to 4,200 feet.

Midwest Refining Co.'s No. 26 State, C SE SW, Section 4-19-38, was completed at 4,190 feet was rated at 2,227 bbls. of oil and 1,000,000 feet of gas. The tubing is at 4,170 feet.

Empire Gas & Fuel Co.'s No. 3 Hardin, SE NE NW, Section 19-18-38, was drilled to 4,220 feet and with 3-inch tubing at 4,190 feet it was given a potential of 8,683 bbls. of oil and 10,000,000 feet of gas. This well is an offset on the west to Tidal Oil Co.'s No. 3 Hardin, the two wells being the most northerly in the field and 1¼ miles south of the Landreth Production Co.'s No. 1 State, which encountered water and was abandoned. These two wells were spotted two locations south of the lease lines and no offsets are required.

Vacuum Oil Co.'s No. 1 Berry, NE cor. SW, Section 31-18-38, which was reported a completion last week and waiting for proration test, was given a potential of 2,138 bbls. through casing and tubing and 1,947 bbls. through tubing alone. Tidal Oil Co.'s No. 4 Grimes, reported a completion last week, was given an official rating of 21,269 bbls. daily through casing and tubing.

#### Drilling Operations

Routine operations in the Hobbs area include the following:

Cecil Bordages' No. 1 Hughes, C S half, Section 27-19-38, is bottomed at 4,012 feet and is drilling out cement in the collapsed 8¼-inch at 2,800 feet. The 8-inch tools will not pass the 2,940-foot level.

Continental Oil Co.'s No. 1-C State, C NW SE, Section 5-19-38, cemented 7-inch at 3,970 feet.

Landreth Production Co.'s No. 1-C State, NE cor. NW, Section 6-19-38, is drilling at 1,645 feet in anhydrite. Top of the anhydrite was at 1,600 feet.

Midwest Refining Co.'s No. 11 Thorpe, C NE NW, Section 10-19-38, is drilling at 2,685 feet in anhydrite, and its No. 11 State, C NE NW, Section 9-19-38, cemented 10¾-inch at 2,768 feet and is rigging up cable tools. Same company's No. 26 McKinley, C SE NW, Section 5-19-38, is drilling at 4,070 feet in lime with 6⅝-inch cemented at 3,950 feet. Midwest's No. 29 Turner, C SW SW, Section 34-18-38, is bottomed at 3,340 feet, at which depth the rig was destroyed by fire. The operation is idle awaiting the insurance adjusters.

National Securities Oil Co.'s No. 1 Linam, NE SE SW, Section 33-18-37, west of the Hobbs Pool, is drilling at 2,750 feet. It topped salt at 1,706 feet and bottomed it at 2,650 feet. Elevation is 3,706 feet.

Sun Oil Co.'s No. 4 McKinley, C SW NE, Section 5-19-38, is drilling at 3,820 feet in lime and anhydrite. It had a show of gas at 2,806-08 feet and a show of oil at 3,170 feet. The 9⅝-inch was cemented at 2,746 feet.

The Texas Company's No. 3-C State, C SW NE, Section 25-18-37, cemented 7-inch at 3,935 feet.

Tidal Oil Co.'s No. 5 Grimes, NW SE NE, Section 29-18-38, cemented 12½-inch at 228 feet.

#### Eunice Area—Lea County

Ohio Oil Co.'s No. 1 State-McDonald, SW NW SW, Section 15-22-36, has been completed as a gas well at a total depth of 3,878 feet after plugging back from 3,904 feet to shut off water. It gauged 23,000,000 feet open flow. This well is about 5 miles south and a little east of the Eunice Pool where several producers have been completed.

Continental Oil Co.'s No. 1 William Meyers, SW cor. NW, Section 28-22-36, 2 miles to the southwest of the Ohio's No. 1 State-McDonald, is being plugged back from 4,304 feet to complete as a gas well.

Getty Oil Co.'s No. 1 State, NE cor., Section 19-21-36, in the Eunice Pool, is listed as a completion after being tested for several weeks. Total depth is 4,000 feet and pay was at 3,870-4,000 feet. It made 450 bbls. of oil and 3,000,000 feet of gas the first 24 hours. The elevation is 3,626 feet and top of the anhydrite was at 1,330 feet, salt at 1,430-2,804 feet and top of brown lime at 2,955 feet. There were gas shows at 3,180 feet, 3,267-69 feet, and 3,391-3,401 feet, and oil shows at 3,768-78 feet, 3,821-23 feet, and 3,826-28 feet.

Shell Petroleum Corp.'s No. 1 Coleman, NW cor. SE, Section 17-21-36, is bottomed at 2,976 feet in anhydrite and is drilling plug. The 9⅝-inch was cemented at 2,955 feet. Continental Oil Co.'s No. 1-A Lockhart, NE cor., Section 18-21-36, is drilling at 900 feet, and its No. 2 A. E. Meyers, SE cor. NW, Section 17-21-36, is drilling at 2,650 feet in anhydrite. Atlantic Oil Producing Co.'s No. 1 Coleman, SW NE NW, Section 17-21-36, is drilling water well.

#### Lovington Area—Lea County

Galt, Brown and others' No. 1 State, SW NW NW, Section 9-15-35, is drilling at 3,290 feet in anhydrite. It topped brown lime at 3,200 feet and elevation is 4,019 feet.

#### Caprock Area—Lea County

Western Drilling & Engineering Co.'s No. 1 Bridges, SE cor. NW, Section 17-17-34, is drilling at 3,000 feet.

#### Eddy County

Flynn, Welch & Yates' No. 59 State, NW NE, Section 5-19-28, in the Artesia area, has begun drilling. Getty Oil Co.'s No. 6 Dooley, C NW SW, Section 24-20-29, Twin Mounds district, is shut down in lime at 1,247 feet for engine repairs. Lockhart & Co.'s No. 1 Livingston, C SW SW, Section 23-24-28, Pearce Canon district, is drilling at 2,090 feet in lime and anhydrite. It had a hole full of sulphur water at 1,495-1,505 feet and an increase at 1,530 feet.

#### Valencia County

Thomas B. Harlan and others' No. 2 Harlan Ranch, NW cor., Section 5-6n-2e, De Chavez structure, is reported drilling at 4,205 feet and close to the depth of No. 1 which was lost at 4,225 feet. It is supposed to be near the top of the Pennsylvanian formation. Acme Development Co.'s No. 1 Santa Fe, SW NW, Section 27-7n-4w, is reported drilling at 4,815 feet under a new contract. This well was reported to have topped the Pennsylvanian at 1,597 feet.

#### San Juan County

Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, has rerun 6¼-inch at 2,012 feet and is recementing. At this depth it had a good show of gas in the top of the Picture Cliff. Murchison Oil Co.'s No. 4 Angel Peak, NW SW SE, Section 11-28-11, is drilling in the Picture Cliff at 1,861 feet, and its No. 5, NE NW, Section 11-28-11, is on top of the Picture Cliff at 1,784 feet and waiting for cable tools from No. 4 to drill in.

### COLORADO

#### Weld County

The Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, on the Greasewood Dome in Weld

(Continued on Page 175)

## MORE COMPLETIONS, LESS PRODUCTION REPORTED FROM EASTERN FIELDS

By Staff Correspondent

PITTSBURGH, Pa., Dec. 8.—A survey of the operations of the past month showed a slight increase in the number of completed wells for the eastern areas but with about a 20 per cent reduction in initial oil production and no large wells reported. There were several fair gas wells completed in the 62 gassers drilled in during the month, which is to be expected even in old fields when the preponderance of the drilling is for gas.

Due to the severe cold wave which swept the eastern districts, drilling was considerably retarded but it brought with it a slight increase in the smaller streams, which will be of great benefit in drilling as many areas are still shut down for lack of water. West Virginia came to the front with the largest oil completion in many months, and a very fair gas well. On the waters of Sheep Run in Grant district, West Virginia, about 500 feet southeast of his No. 3, H. N. Rinehart completed his No. 4 on the T. E. Moore farm in the Salt sand and it produced 125 bbls. the first 15 hours natural. The Salt sand is not very long lived for flush production but after settling down proves a good sand. The gas well referred to was Frye and McCracken's No. 3 on the John McGinnis farm, Cameron district, Marshall County, which was drilled deeper from the Salt sand at 1,597 feet, in which it was a small gas well, to the Injun sand at 1,772 feet, and through to the pay at 1,867 feet where it struck gas. Drilling was suspended without going deeper and the well was shut in showing a test for over 3,500,000 feet and with increasing pressure. When shut in the rock pressure was 450 pounds, with the Salt sand taking care of part of the pressure. No. 1 on this farm came in doing 1,000,000 feet.

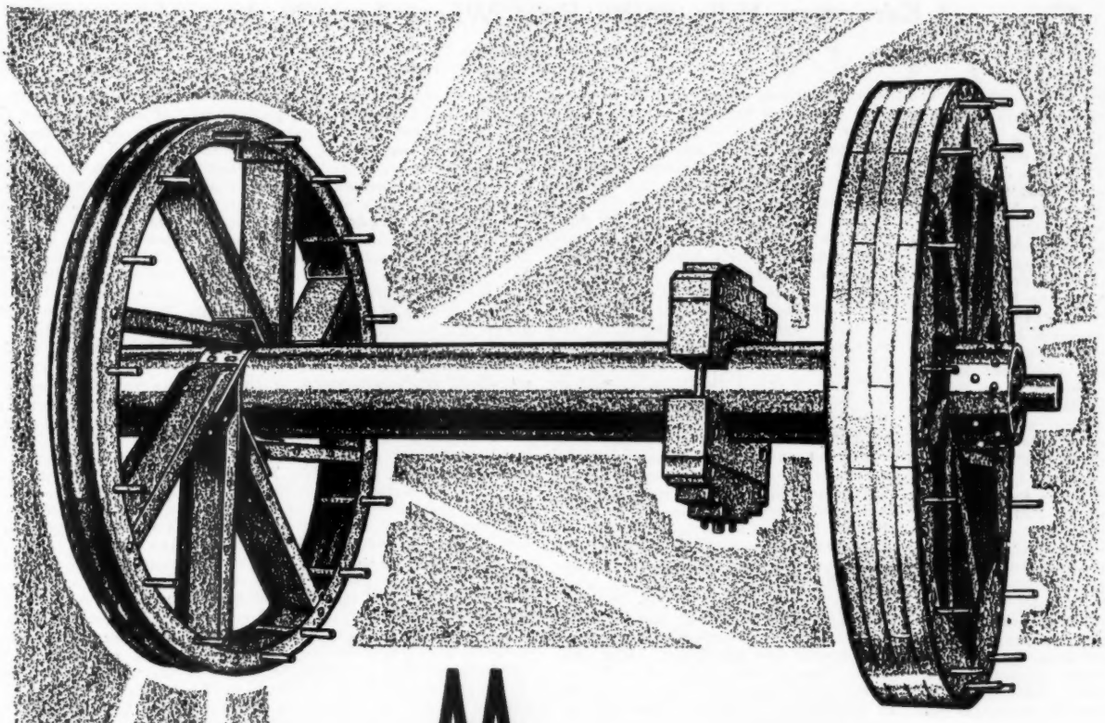
### SOUTHEAST OHIO

In southeast Ohio the only fair wells were gassers, the largest being a test by Henry Scholl and others on the Mary E. Woodgeard farm in the NW of Section 35, Benton Township, Hocking County. It was drilled in the Clinton sand at 2,399 feet and is estimated good for 2,000,000 feet a day. In the NE of Section 23, York Township, Athens County, the Union Drilling & Producing Co. completed a test on the W. H. Powell farm in the Berea grit at 980 feet. It is a fair gas well showing for 1,000,000 feet.

McClay Brothers and others completed a test well on the A. L. Rine farm, SE of Section 5, Pike Township, Coshocton County, in the Clinton sand at 2,970 feet. It is showing for 750,000 feet.

Completions in other districts of southeast Ohio were few and small. In Section 21, Lake Township, Ashland County, Harry Farmer and others completed

(Continued on Page 172)



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# Gas Conservation Law Constitutional

## California Supreme Court Unqualified in Its Decision. Kettleman Hills to Be First Where Law Is Applied

By L. P. Stockman
*Staff Correspondent, California Fields*

LOS ANGELES, Calif., Dec. 6.—The most important development in California during the past week was the decision of the California supreme court that the gas conservation law was unqualifiedly constitutional. This decision is of vital importance, coming as it does at a time when the Pacific Coast price structure is in a weakened condition and major companies confronted with the necessity of absorbing additional surplus production. The decision is so drastic that California production will be reduced far below normal requirements if state officials prosecute enforcement work to the maximum degree. The California supreme court's decision is appealable only to the United States supreme court and it is quite probable that the highest tribunal in America will be asked to review the decision of the California court. It may be possible, too, that the California legislature may be asked to amend the existing statute in order that operators may be permitted to use their discretion in effecting interchangeability of natural gas contracts as this is a matter of prime importance inasmuch as the source is many times considerably removed from the principal consuming centers.

It is a little too early to visualize the effect of the gas conservation law on California production inasmuch as this depends upon just how agressive a position is assumed by the Department of Natural Resources. Kettleman Hills will be the first field to feel the effect of this new decision as Superior Judge S. L. Strother of Fresno recently overruled vigorous objections and ordered defendants to be prepared by December 15, at which time the State's action to prevent waste of natural gas at Kettleman Hills will be resumed. Judge Strother is expected to issue the necessary orders to eliminate waste of natural gas within a short time after resumption of the action now pending. If he issues either an injunction or a temporary restraining order it will be enforceable immediately unless the defendants can prevail upon some federal judge to issue a temporary writ of prohibition. Attorneys are of the opinion in view of the California supreme court's decision and a favorable but somewhat less drastic decision of the California district court of appeals, that this possibility is rather remote. It must be remembered, however, in view of past experience, that some technical delay might be secured even though this seems improbable.

### To Save Gas at Kettleman

If, within a short time after the resumption of the State's suit to prevent waste of natural gas at Kettleman Hills on December 15, Superior Judge Strother issues an injunction prohibiting such waste and it is not successfully appealed, gas production will be reduced approximately 350,000,000 feet per day. The North Dome at Kettleman Hills is producing about 500,000,000 feet of natural gas per day, of which the San Francisco Bay region and other outlets are using approximately 150,000,000 feet daily. If Judge Strother uses the California supreme court's decision as a precedent, he will order the pinching in of every well in the Kettleman Hills Field with the exception of the Superior Oil Co.'s No. 1 Huffman. This deduction is based on the assumption that all wells on production at the present time can be successfully shut in without endangering life or property because of excessive pressures.

No. 1 Huffman of the Superior Oil Co., on the basis of present production, 15,000 bbls. of crude oil and 75,000,000 feet of natural gas per day, has the lowest gas-oil ratio of any well in the Kettleman Hills Field at the present time. This phenomenal producer is only producing approximately 5,000 feet of natural gas per day for each barrel of oil brought to the surface. Other wells in this field have considerably higher gas-oil ratios, one of which is producing approximately 52,000 feet of natural gas per day for each barrel of oil. With the exception of No. 1 Huffman, no well in the North Dome is producing less than 25,000 feet of natural gas per day for each barrel of production.

The outcome of the hearing instituted to eliminate waste of natural gas at Kettleman Hills will be watched with considerable interest because of the probability that similar action will be immediately prosecuted in other fields throughout the State. Action of this nature will be especially apropos in view of existing conditions in the Belridge and Lost Hills Fields of Kern County where Temblor production similar to that encountered at Kettleman Hills has either already been developed or is expected to be secured in the near future as the result of drilling operations already under way. The geographical location of California's fields is an important factor if the California supreme court's decision is used as a basis upon which to predicate enforcement of the gas conservation law. Pipe line facilities and the ability of public utilities to transmit natural gas to consuming centers are other important factors which also will have an effect on the allowable gas production of various fields. For this reason Long Beach, Ventura Avenue and Elwood will probably form one competitive unit, in which event wells having the most favorable gas-oil ratio will have a distinct advantage. This is due to the fact that the California supreme court's decision practically nullifies any contracts existing between producers and gas companies calling for the delivery of natural gas. This angle of the situation, however, may possibly be given special consideration at the next session of the California legislature.

The effectiveness of the gas conservation law and the policy to be pursued by the Department of Natural Resources may exert a substantial effect on the existing price structure on the Pacific Coast. Competition all along the coast has reduced the price of gasoline with the result that practically all major companies and many legitimate independent refiners are losing gallonage to bootleggers and price cutters. This condition has been rather acute during the past 30 days and a cut in both crude and refined oil prices has been anticipated. Strenuous efforts are being made to avert a general reduction in prices and this move might ultimately prove successful if the gas conservation law becomes effective. This is particularly important in view of the Richfield Oil Co.'s new policy of operating its refineries on crude oil from its own wells as far as possible. This company has committed itself to buy only a minimum quantity of refining crude and has already served notice of cancellation on a number of producers. The company expected to operate its refineries on crude oil produced from its own wells to be drilled in the Lost Hills and Belridge Fields but in view of the present status of the gas conservation law this may not prove feasible. It remains to be seen, therefore, whether the company will be able to operate on its new budget plan or whether it will be obliged to continue purchasing a considerable quantity of oil in order to meet refinery requirements. This is of special interest because if the company is obliged to open up production at Long Beach, where it has at least 10,000 bbls. of crude oil shut in per day, it will jeopardize the existing crude oil curtailment program.

### Playa Del Rey

The daily production in the Playa Del Rey Field of Los Angeles Basin did not show any great change during the past week as the normal decline was offset by the aggregate initial daily production of new wells. During the early part of the week the upper, or Del Rey, zone was producing 27,000 bbls. per day, while the deep Recreation zone was producing 15,500 bbls. daily. The average daily well production for the period in question was 395 bbls., as compared with 435 bbls. at a similar time one week previous. The Blueridge Oil Co. successfully completed No. 15 Daly, a new well flowing 360 bbls. of 23.4 gravity oil and 600,000 feet of natural gas per day from the Del Rey zone at 4,496 feet, the hole having been finished with a 4¾-inch liner carrying 1,056 feet of perforated. The Metropolitan Oil Corp.'s No. 2 D.&G., another new well finished in the Del Rey zone, was good for 655 bbls. of 22.3 gravity oil per day from 4,420 feet. This new well, which was finished with a 10¾-inch water string landed at 3,454 feet and a 6⅝-inch liner including 985 feet of perforated, is the second successful producer to be finished by the Metropolitan within the past 15 days.

The Lubrite Oil Co. has just finished its No. 1 Del Rey in the deep Recreation zone and this new producer, with a 6⅝-inch water string landed at 5,635 feet, came in flowing 150 bbls. per hour but subsequently settled down to 1,600 bbls. per day. Thomas Kelly, with three producing wells to his credit, successfully finished No. 2 Gage, a new well flowing 428 bbls. of 24.6 gravity oil per day from the Del Rey zone at 4,601 feet. The Ohio Oil Co., discoverer of the Playa Del Rey Field, added two new wells to its list of producers during the past week, one of them being located on the discovery lease. This was No. 5 Recreation, which registered an initial daily production of 476 bbls. from 3,895 feet, the hole having been plugged back from 4,127 feet and finished with an 8⅝-inch water string landed at 3,410 feet. The Ohio's other new producer was well No. 1-J, which was good for 210 bbls. per day from the Del Rey zone at 4,615 feet.

The Union Oil Co. finished No. 4 Townsite in the Del Rey zone after plugging back from 4,595 feet to 4,350 feet, and, while this new producer made a preliminary flow of 600 bbls. per day, it may be necessary to put it on the pump as the flow is not of a sustained nature. The Western Marine Oil Co. has just finished its No. 1 Del Rey in the upper zone at 4,434 feet and it is flowing 745 bbls. of 24.2 gravity oil per day. This well, with a 10¾-inch water string landed and cemented at 3,455 feet, was finished with a 6⅝-inch liner including 1,000 feet of perforated and 3,392 feet of 2½-inch tubing. The Senator Oil Co. has finished its first producing well in the Playa Del Rey Field and this well, No. 1 Del Rey, bottomed at 4,564 feet and finished with a 5-inch liner carrying 960 feet of perforated, is good for 440 bbls. of 23.8 gravity oil per day.

The La Canada Oil Co., with two producing wells to its credit, has just finished No. 5 Del Rey flowing 460 bbls. of 23.1 gravity oil per day from 4,340 feet and tentative plans call for the drilling of another well in the near future. Geffeney & Cahn successfully corrected the water trouble which retarded completion of their No. 1 Del Rey and this new well is at the present time producing 130 bbls. of 22.9 gravity oil per day from the Recreation zone at 6,322 feet. The Northern Investment Co. also chalked up a new completion during the past week when its No. 5 Booth was brought in on the beam pumping 241 bbls. of 22.1 gravity oil per day from 4,534 feet. Knox, Powell & Stockton have just finished No. 3 Davis, a new well in the Del Rey zone at 4,595 feet, after landing a 4¾-inch liner including 990 feet of perforated and it is flowing at the rate of 600 bbls. per day.

### Long Beach

The outstanding completion in the Long Beach Field during the past week was the Magna Oil Co.'s No. 1 Signal, which came in under a natural flow doing 2,710 bbls. of 27.8 gravity oil per day from 5,220 feet. This new well,

**TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS**

| Commodity— | Total this week | Daily average | Total last week | Daily average | This year to date | Same time last year |
|---|---|---|---|---|---|---|
| Crude oil | ..... | ..... | ..... | ..... | 68,690 | 997,250 |
| Fuel oil | ..... | ..... | ..... | ..... | 71,950 | 468,825 |
| Diesel and gas oil | 248,061 | 35,437 | 77,646 | 11,092 | 3,541,744 | 2,633,519 |
| Gasoline | 270,059 | 38,580 | 325,112 | 46,445 | 18,028,643 | 19,329,663 |
| Kerosene | ..... | ..... | ..... | ..... | ..... | 49,750 |
| Naphtha distillate | ..... | ..... | ..... | ..... | ..... | 81,750 |
| Coastwise— | | | | | | |
| Crude oil | 267,108 | 38,158 | 188,750 | 26,964 | 14,491,414 | 24,280,216 |
| Fuel oil | 274,455 | 39,208 | 570,080 | 81,440 | 17,224,857 | 18,163,171 |
| Diesel and gas oil | 65,664 | 9,380 | 29,207 | 4,172 | 1,583,560 | 1,182,684 |
| Gasoline | 309,482 | 43,355 | 127,163 | 18,166 | 11,749,849 | 10,176,359 |
| Kerosene | ..... | ..... | ..... | ..... | 151,436 | 70,286 |
| Exports— | | | | | | |
| Crude oil | 79,102 | 11,300 | 199,867 | 28,552 | 6,433,218 | 5,650,631 |
| Fuel oil | 322,365 | 46,052 | 247,060 | 35,294 | 16,171,146 | 17,400,562 |
| Diesel and gas oil | 8,766 | 1,252 | 33,004 | 4,715 | 3,980,404 | 2,514,433 |
| Gasoline | 179,602 | 25,657 | 162,513 | 23,359 | 14,430,287 | 11,165,589 |
| Kerosene | 37,348 | 5,321 | ..... | ..... | 3,182,497 | 2,983,259 |
| Lubricants | 13,695 | 1,956 | ..... | ..... | 59,179 | ..... |

**TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF PORTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| Diesel and gas oil | ..... | ..... | ..... | ..... | 279,088 | ..... |
| Gasoline | ..... | ..... | ..... | ..... | 1,080,671 | 2,275,638 |
| Lubricants | ..... | ..... | ..... | ..... | 27,796 | 138,706 |
| Coastwise— | | | | | | |
| Fuel oil | 35,161 | 5,023 | 64,310 | 9,187 | 3,132,931 | 2,830,377 |
| Diesel and gas oil | 13,294 | 1,899 | 32,960 | 4,709 | 356,476 | 360,538 |
| Gasoline | 138,218 | 19,745 | 19,632 | 2,805 | 4,020,796 | 4,805,394 |
| Kerosene | 1,960 | 280 | 2,511 | 359 | 210,508 | 199,396 |
| Exports— | | | | | | |
| Crude oil | ..... | ..... | ..... | ..... | 59,993 | 121,603 |
| Fuel oil | 56,114 | 8,016 | 126,730 | 18,104 | 1,049,140 | 841,631 |
| Diesel and gas oil | 69,946 | 9,992 | ..... | ..... | 527,535 | 393,132 |
| Gasoline | 140,007 | 20,001 | ..... | ..... | 3,785,853 | 5,165,258 |
| Kerosene | 15,114 | 2,159 | ..... | ..... | 585,385 | 624,180 |
| Lubricants | ..... | ..... | ..... | ..... | 33,579 | 29,795 |

# CHRISTMAS

Business, at this season, falls under one general heading — a means of providing for the present and future of those most dear. It is human nature that Christmas sharpens a realization of the necessity to hold and protect that which has been acquired.

This realization finds ready expression in the execution of a will. Such disposition of an estate safeguards business interests and personal property, perpetuates both and thus provides for the future. A will properly drawn by your attorney, naming the Exchange Trust Company executor and trustee, is a Christmas gift that only the head of a business and family can give.

The Exchange Trust Company is eminently qualified by virtue of its experience and facilities to preserve and perpetuate your estate.

**EXCHANGE BANKS OF TULSA**

The Exchange National Bank | Exchange Trust Company | Exchange National Company

which was finished with a 9-inch water string landed at 4,750 feet and a 4¾ inch liner carrying 450 feet of perforated, is flowing under a pressure of 580 pounds on the casing. The interest which attaches to the completion of this new well lies in the fact that it is located on a small triangular piece of ground located at the intersection of three streets. The lease in question, which is just large enough to sustain the rig and equipment, is the smallest piece of property drilled in California up to the present time. It affords maximum drainage area, however, as far as town lot development is concerned and the Magna's new well should therefore show favorable sustained production. The Dabney-Johnston Oil Corp. recompleted No. 8 Signal a few days ago and this well, bottomed at 7,033 feet, was returned to production pumping 130 bbls. per day after being redrilled to 3,505 feet. The Robal Petroleum Co. has just finished its No. 1 Cerritos in the northwest section of the Long Beach Field and this new well, bottomed at 7,510 feet, is good for 240 bbls. of 25.1 gravity oil per day. The Ring Oil Co. recompleted No. 1 Johnson after cleaning out the hole to bottom, 7,450 feet, and it was returned to production pumping 75 bbls. of 25.2 gravity oil per day.

### Ventura Avenue

The Associated Oil Co. put two wells on production in the prolific Ventura Avenue Field during the past week and both of them registered substantial production. No. 96 Lloyd, bottomed at 7,539 feet and finished with a 6⅝-inch oil string carrying 812 feet of 500-mesh screen, came in under a natural flow doing 3,962 bbls. of clean 28.1 gravity oil and 4,705,000 feet of natural gas per day. No. 73 Lloyd, the Associated's latest completion in this field, was brought in flowing 1,239 bbls. of clean 28.4 gravity oil and 1,555,000 feet of natural gas per day after being redrilled and deepened to 7,425 feet. This well, originally completed in May, 1929, was killed a few months ago because of water trouble in order that corrective work might be undertaken.

Caroline Spalding has completed the customary five-day flow test on well No. 5 completed early in the week and this new well, located on State tideland lease No. 93 at Elwood, is good for 10,780 bbls. of clean 32.3 gravity oil. The next well listed for completion in the Elwood Field of Santa Barbara County is well No. 6 on State tideland lease No. 88 of the Barnsdall and Rio Grande. This new well was bottomed at 3,601 feet and finished with a 6⅝-inch liner carrying 307 feet of perforated. It is at the present time being swabbed and should be in within the next few hours. In accordance with the new development program inaugurated by operators in the Elwood Field, drilling operations in the future will be minimized to such an extent that only a few strings of tools will be in operation for several months to come.

The Vaqueros Major Oil Co., which has finished two producing wells on the Union Annex Lease in the Purisima Field of Santa Barbara County, is contemplating the erection of a small refinery in that area because of the inability to dispose of its potential current production. The Union Annex Lease is located in the extreme eastern end of the Purisima structure. The Western Gulf Oil Co. should be in a position shortly to determine the potentiality of its No. 1 Bradley, which encountered a rather promising looking oil sand just previous to the conclusion of drilling at 4,778 feet. Development work in the Santa Barbara Mesa Field will probably be rather limited during the next several months due to the inability of operators to dispose of any production secured. Present development is centered in the area east of the original Mesa Field and additional drilling may prove up the existence of small commercial production, although this is more of a possibility than a probable reality.

One of the most important developments in California from a drilling standpoint was the encountering of the Temblor formation in the Lost Hills Field of Kern County by the Universal Consolidated Oil Co., a subsidiary of the Richfield Oil Co. of California. The significance which attaches to this discovery lies in the fact that every indication points to the development of prolific Temblor production similar to that encountered in the Kettleman Hills and Belridge Fields. The Universal Consolidated's potential producer will probably be given a chance to make a bid for production some time within the next week or 10 days as the water string has already been landed and cemented preparatory to an early production test. The outlook for production is extremely promising and this well may result in substantial production and simultaneously prove up at least 5,000 acres of oil land in the Lost Hills Field. In addition to the Universal Consolidated and Richfield Oil Co., the Associated, Standard, General Petroleum, Security Oil Co., California Star Oil Co.

(Continued on Page 174)

# FIRST DEEP TEST IN MUSKEGON FIELD BELOW 3,700 FEET WITH NO SHOWINGS

By Paul A. Elliott

MUSKEGON, Mich., Dec. 8.—The week of December 1 to 6 was the quietest week that has been experienced in the oil industry in Michigan since the discovery well was brought in at Muskegon in December, 1927.

Only one completion, a 1,000,000-foot gas well in the Mount Pleasant area, was reported, while the first deep test in the Muskegon Field gave indications of being dry in the Niagara formation.

Apparent failure of the first deep test in the Muskegon Field to hit large gas production in the Niagara or Guelph formation will probably curtail new drilling in this part of western Michigan for some time although it is possible drilling of the deep test will be continued to a maximum of 5,200 feet as originally intended.

Only one other well was drilling in the field, the Shoup Oil & Gas Co.'s No. 6 George H. Shoup well, NW NW, Section 8-10n-16w, Muskegon Townshih, which was cased at 2,200 feet and is expected to drill into the Monroe pay sands at about 2,215 feet.

### Log of Deep Test

The deep test, the Muskegon Deep Well Syndicate's No. 5 Herman Heinz, NE NE, Section 8-10n-16w, Muskegon Township, struck the bottom of the Salina formation at 3,605 feet after penetrating more than 500 feet of salt from 3,085 feet down. Only intermittent streaks of limestone with one slight show of oil at 3,375 feet broke up the salt. The well went into pink limestone at 3,605 feet, struck hard gray limestone at 3,650 feet

(Continued on Page 174)

### IMPORTANT NORTHERN CALIFORNIA WILDCATS

| Company, well and location— | S.T.R. | Depth | Status— |
|---|---|---|---|
| Standard No. 1 Point Conception, Santa Barbara Co. | X- 5-34 | 6,730 | reaming |
| Fields Gas Co., No. 1 Santa Maria, Santa Barbara Co. | 8- 9-33 | 5,570 | suspended |
| Western Gulf, No. 1 Santa Maria, Santa Barbara Co. | 5- 9-33 | 4,778 | to set pipe |
| Barnsdall, No. 1 Gato Ridge, Santa Barbara Co. | 9- 8-32 | 5,645 | sd. sh. drilling |
| Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co. | 2- 7-33 | 1,730 | cleaning out |
| General Pet., No. 1 Goleta, Santa Barbara Co. | 21- 4-28 | 4,533 | gas—shut in |
| General Pet., No. 2 Goleta, Santa Barbara Co. | 21- 4-28 | 4,350 | gas—shut in |
| General Pet., No. 3 Goleta, Santa Barbara Co. | 21- 4-28 | 3,250 | br. sh. drilling |
| General Pet., No. 134 Goleta, Santa Barbara Co. | 21- 4-28 | 1,485 | suspended |
| General Pet., No. 136 Goleta, Santa Barbara Co. | 21- 4-28 | 1,016 | suspended |
| General Pet., No. 137 Goleta, Santa Barbara Co. | 21- 4-28 | 1,026 | suspended |
| General Pet., No. 138 Goleta, Santa Barbara Co. | 21- 4-28 | 4,931 | suspended |
| General Pet., No. 139 Goleta, Santa Barbara Co. | 21- 4-28 | 1,035 | suspended |
| General Pet., No. 143 Goleta, Santa Barbara Co. | 21- 4-28 | 1,040 | suspended |
| Boles Oil Co., No. 140 Goleta, Santa Barbara Co. | 22- 4-28 | 1,040 | suspended |
| U. S. Pet., No. 141 Goleta, Santa Barbara Co. | 20- 4-28 | 1,035 | suspended |
| U. S. Pet., No. 142 Goleta, Santa Barbara Co. | 20- 4-28 | 1,032 | suspended |
| U. S. Pet., No. 143 Goleta, Santa Barbara Co. | 20- 4-28 | 1,019 | suspended |
| El Camino, No. 149 Goleta Tideland, Santa Barbara Co. | 22- 4-28 | 1,035 | suspended |
| Bolsa Chica, No. 191 Goleta, Santa Barbara Co. | 24- 4-29 | 3,875 | sd. sh. drilling |
| Caldwell Bevan, No. 159 Goleta, Santa Barbara Co. | 24- 4-29 | 1,040 | suspended |
| Cochran, J. H., No. 1 Naples, Santa Barbara Co. | 7- 4-29 | 4,630 | hd. sd. drilling |
| Johnson, George, No. 1 Goleta, Santa Barbara Co. | X- 4-28 | 4,089 | set pipe |
| Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co. | 20-10-35 | 5,500 | suspended |
| Pacific Western, No. 1 Gibraltar, Santa Barbara Co. | 14- 5-27 | 2,345 | suspended |
| Prairie Oil & Gas Co., No. 1 Ventura, Ventura Co. | 30- 3-22 | 7,518 | recemented |
| Rio Grande, No. 1 Lankershim, Ventura Co. | 13- 4-19 | 1,820 | testing |
| Associated, No. 1 Rincon Creek, Ventura Co. | 19- 4-24 | 2,080 | suspended |
| Pure Oil Co., No. 1 S. P. Canyon, Ventura Co. | 15- 4-21 | 2,591 | sd. sh. drilling |
| California Republic, No. 1 Sespe, Ventura Co. | 23- 4-21 | rig | suspended |
| Superior Oil Co., No. 1 Sespe, Ventura Co. | 14- 4-21 | 3,092 | sd. sh. drilling |
| Lockwood Valley Oil Co., well No. 1, Ventura Co. | 32- 8-21 | 225 | suspended |
| Nordon Oil Co., No. 1-A Buttonwillow, Kern Co. | 7-29-24 | 6,085 | sd. sh. drilling |
| Superior Oil Co., No. 1 Buttonwillow, Kern Co. | 32-29-25 | 1,010 | sd. drilling |
| Federal Drlg. Co., No. 1 Buena Vista, Kern Co. | 20-31-24 | 4,895 | sd. sh. drilling |
| General Pet., No. 1 Belridge, Kern Co. | 30-28-21 | 3,640 | redrilling |
| The Texas Company, No. 1 Belridge, Kern Co. | 22-27-20 | 2,299 | sd. sh. drilling |
| Richfield, No. 1 Belridge, Kern Co. | 20-27-20 | 5,804 | looks good |
| Standard, No. 1 Belridge, Kern Co. | 31-27-20 | 1,143 | sd. sh. drilling |
| Ohio Oil Co., No. 1 Belridge, Kern Co. | 36-27-20 | 3,377 | br. sh. drilling |
| Union, No. 17 Belridge, Kern Co. | 36-27-20 | 1,040 | sd. sh. drilling |
| Union, No. 1 South Belridge, Kern Co. | 27-28-20 | .. | location |
| Rio Grande, No. 1 Belridge, Kern Co. | 18-28-22 | 3,680 | suspended |
| Reward Oil Co., No. 1 Belridge, Kern Co. | 34-27-20 | 1,600 | sd. sh. drilling |
| Shell, No. 3 Belridge, Kern Co. | 24-28-20 | 940 | abandoned |
| Shell, No. 4 Belridge, Kern Co. | 14-28-20 | 1,210 | testing |
| Wallace, K. C., No. 1 Belridge, Kern Co. | 32-29-21 | 3,900 | sd. sh. drilling |
| Rio Cal. Pet., No. 1 Shale, Kern Co. | 2-27-18 | 2,355 | suspended |
| Shell, No. 1 Weed Patch, Kern Co. | 29-30-29 | 6,150 | deepening |
| Shell, No. 2 Weed Patch, Kern Co. | 29-30-29 | 3,803 | sd. sh. drilling |
| Mohawk Oil Co., No. 1 Weed Patch, Kern Co. | 32-30-29 | 4,617 | sd. sh. drilling |
| Petroleum Securities, No. 1 Edison, Kern Co. | 14-29-29 | 3,763 | gr. sd. drilling |
| Symark Oil Co., No. 1 Edison, Kern Co. | 24-29-29 | 2,130 | suspended |
| Sayre, F. M., No. 1 Edison, Kern Co. | 5-30-29 | 4,220 | suspended |
| Standard, No. 1 Devils Den, Kern Co. | 14-25-18 | 1,574 | sd. sh. drilling |
| Shell, No. 1 Semitropic, Kern Co. | 17-27-23 | 8,360 | hd. sd. drilling |
| Cities Service, No. 1 Wasco, Kern Co. | 16-28-24 | rig | rigging up |
| Moran & DeCamp, No. 1 Mojave, Kern Co. | 26-10-14 | 720 | hd. sd. drilling |
| Meridian Oil Co., No. 1 Antelope, Kern Co. | 11- 9-15 | 3,560 | suspended |
| Bardeen, H. A., No. 1 San Emidio, Kern Co. | 18-10-23 | 1,190 | suspended |
| Bardeen, H. A., No. 2 San Emidio, Kern Co. | 10-10-23 | 4,368 | plugging back |
| Ritchie, J. J., No. 1 Tejon, Kern Co. | 33-11-19 | 4,920 | cemented |
| Associated, No. 1 Jacalitos, Fresno Co. | 22-21-15 | 3,264 | sd. sh. drilling |
| Carruthers Oil Co., No. 1 Fresno, Fresno Co. | 4-17-20 | rig | suspended |
| Miracle Oil Co., No. 1 Cuyama, San Luis Obispo Co. | 17-10-25 | 214 | sd. drilling |
| Panorama Oil Co., well No. 1, San Luis Obispo Co. | 7-31-21 | 4,019 | suspended |
| Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co. | 21-27-15 | 4,525 | suspended |
| Paso Robles Synd., No. 1 Creston, San Luis Obispo Co. | 21-27-11 | 3,941 | suspended |
| Continental, No. 1 San Miguel, San Luis Obispo Co. | 26-25-11 | 2,040 | sd. sh. drilling |
| Schilling, C., No. 1 Atascadero, San Luis Obispo Co. | 24-28-12 | 880 | cemented |
| Pismo Dome Oil Co., No. 1 Edna, San Luis Obispo Co. | 5-31-13 | 3,010 | cleaning out |
| Shockley, C., No. 1 Pismo, San Luis Obispo Co. | 13-32-13 | 1,648 | hd. sd. drilling |
| Standard, No. 1 King City, Monterey Co. | 23-22- 7 | 5,825 | hd. sd. drilling |
| Pacific Inland, well No. 1, Monterey Co. | 19-23-15 | 901 | hd. sd. drilling |
| Brown, F. A., No. 1 Parkfield, Monterey Co. | 15-23-14 | 816 | cleaning out |
| O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co. | 7-23-20 | 1,635 | gas well—idle |
| Murphy Oil Co., No. 1 Dudley Ridge, Kings Co. | 20-23-20 | 1,630 | sd. sh. drilling |
| Kettleman Lakeview, No. 1 Tulare Lake, Kings Co. | 11-23-10 | 1,959 | suspended |
| Purman, T. H., No. 1 Reef Ridge, Kings Co. | 36-23-17 | 412 | sd. drilling |
| Seymour, L. W., No. 1 Avenal, Kings Co. | 10-23-16 | 889 | sd. sh. drilling |
| Wellport Oil Co., No. 1 Devils Den, Kings Co. | 9-24-17 | 3,940 | suspended |
| Twin State Oil Co., No. 1 Point Arena, Mendocino Co. | 14-12-17 | 5,240 | sd. sh. drilling |
| Orinda Pet., well No. 1, Contra Costa Co. | 32- 1- 3 | 750 | hd. sd. drilling |
| White, Roy, No. 1 Pixley, Tulare Co. | 8-23-26 | 4,495 | suspended |
| Campbell Oil Co., No. 1 Porterville, Tulare Co. | 22-22-27 | 857 | suspended |
| Western Oil Co., No. 1 Porterville, Tulare Co. | 35-22-27 | 1,022 | suspended |
| Mills & Wilson, No. 1 Porterville, Tulare Co. | 35-22-27 | 913 | suspended |
| Jennings Synd., No. 1 Porterville, Tulare Co. | 8-23-28 | 510 | suspended |
| Terra Bella Drlg. Co., No. 2 Porterville, Tulare Co. | 34-22-27 | 920 | suspended |
| Jaques Oil Co., No. 1 Porterville, Tulare Co. | 34-22-27 | 914 | suspended |
| Hallock, William, No. 1 Porterville, Tulare Co. | 34-22-27 | 1,090 | abandoned |
| Kern Pet. Co., No. 1 Porterville, Tulare Co. | 34-22-27 | 1,184 | suspended |
| Miller & Sylvan, No. 1 Porterville, Tulare Co. | 11-23-27 | 1,030 | suspended |
| Larson Oil Co., No. 1 Porterville, Tulare Co. | 11-23-27 | 1,200 | suspended |
| Kettleman Trust, No. 1 Porterville, Tulare Co. | 21-22-27 | 940 | suspended |
| Lewis, Paul M., No. 1 Porterville, Tulare Co. | 15-22-27 | 1,118 | suspended |
| Turk & Campbell, No. 1 Porterville, Tulare Co. | 34-22-27 | 1,352 | suspended |
| Roetner Oil Co., No. 1 Porterville, Tulare Co. | 34-22-27 | 1,480 | suspended |
| Wells & Armstrong, No. 1 Porterville, Tulare Co. | 10-22-27 | 210 | suspended |
| Enterprise Oil Co., No. 1 Porterville, Tulare Co. | 29-23-28 | 700 | fishing |
| Inland Valley Oil Co., No. 1 Visalia, Tulare Co. | 24-17-24 | 2,060 | reaming |
| Colusa Oil Co., No. 1 Bush, Colusa Co. | 35-15- 4 | 780 | hd. sd. drilling |
| Getty Oil Co., No. 1 Nigger Heaven, Yolo Co. | 23-12- 3 | 2,050 | suspended |

### IMPORTANT SOUTHERN CALIFORNIA WILDCATS

| | | | |
|---|---|---|---|
| Union, No. 1 Orchardale, Los Angeles Co. | 10- 3-11 | 6,300 | sd. sh. drilling |
| Olympic Realty Corp., No. 1 Barnes, Los Angeles Co. | 14- 2-15 | 4,718 | sd. sh. drilling |
| Taylor Oil Co., No. 1 Culver, Los Angeles Co. | 12- 2-15 | 2,680 | sd. sh. drilling |
| Dwyer & Becker, No. 1 Compton, Los Angeles Co. | 17- 3-13 | 4,520 | cleaning out |
| Francis, Don, No. 1 Compton, Los Angeles Co. | 8- 3-13 | 572 | suspended |
| Central Oil Co., No. 1 Compton, Los Angeles Co. | 28- 3-13 | 5,094 | suspended |
| Allison Synd., No. 1 Baldwin, Los Angeles Co. | 8- 2-14 | rig | rigging up |
| Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co. | 30- 3-14 | 6,525 | suspended |
| Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co. | 31- 3-14 | 3,396 | suspended |
| Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co. | 31- 3-14 | 3,300 | recemented |
| Cal. Ventura Oil Co., No. 3 Hermosa, Los Angeles Co. | 31- 3-14 | .. | material |
| Westwood Pet., No. 1 Hermosa, Los Angeles Co. | 6- 4-14 | rig | suspended |
| Wolfe, George, No. 1 Hermosa, Los Angeles Co. | 6- 4-14 | rig | rigging up |
| Wood, C. L., No. 1 Hawthorne, Los Angeles Co. | 10- 3-14 | mtl. | building rig |
| McMahon & McDonald, No. 1 Watts, Los Angeles Co. | 12- 3-14 | 4,665 | suspended |
| McKeon Drlg. Co., No. 1 Watts, Los Angeles Co. | 1- 3-14 | 511 | cemented |
| Rio Grande Oil Co., No. 1 Watson, Los Angeles Co. | 17- 4-13 | 6,295 | suspended |
| Shell, No. 1 Van Nuys, Los Angeles Co. | 19- 2-15 | 5,670 | hd. sd. drilling |
| Mack Oil Co., No. 1 Chatsworth, Los Angeles Co. | 6- 2-16 | .. | location |
| San-Van Oil Co., No. 1 Van Nuys, Los Angeles Co. | 14- 1-16 | 318 | location |
| Rio Hondo Pet., No. 1 Puente, Los Angeles Co. | 14- 2-10 | 3,726 | suspended |
| Rucker & Smith, No. 2 Puente, Los Angeles Co. | 27- 2-10 | rig | rigging up |
| Bardeen Pet., No. 2 Puente, Los Angeles Co. | 2- 2-10 | 730 | sd. sh. drilling |
| Vega Pet. Corp., No. 1 Puente, Los Angeles Co. | 14- 2-10 | mtl. | building rig |
| Bidart Oil Co., No. 1 Puente, Los Angeles Co. | 15- 2-10 | 3,325 | suspended |
| D. & B. Oil Co., No. 1 Puente, Los Angeles Co. | 3- 2-10 | 4,620 | cleaning out |
| El Dorado Oil Co., No. 1 Puente, Los Angeles Co. | 30- 2- 9 | 1,092 | suspended |
| Keck & Hall, No. 1 Puente, Los Angeles Co. | 32- 2- 8 | 1,120 | gas—shut in |
| Marcel Pet. Co., No. 1 Puente, Los Angeles Co. | 31- 2- 8 | 3,100 | suspended |
| Cudahy Oil Co., No. 1 Bell, Los Angeles Co. | 30- 2-12 | 75 | sd. drilling |
| Celito Oil Co., No. 1 Monterey Park, Los Angeles Co. | 25- 1-12 | 5,278 | suspended |
| Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co. | 16- 1-11 | 2,280 | suspended |
| Olympic Corp., No. 1 Calabasas, Los Angeles Co. | 18- 1-17 | 5,695 | fishing |
| Union, No. 1 Coyote Sansinena, Los Angeles Co. | 30- 2-10 | 5,200 | abandoned |
| Ness Pet., No. 1 Newport, Orange Co. | 21- 6-10 | 4,910 | suspended |
| Hall, H. L., No. 1 Newport, Orange Co. | 20- 6-10 | 790 | suspended |
| Standard, No. 1 Newport, Orange Co. | 26- 6-10 | 2,975 | hd. sd. drilling |
| Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co. | 23- 7- 3 | 1,010 | suspended |
| Hemet Pet. Co., No. 1 Ward, Riverside Co. | 9- 5- 1 | 3,560 | suspended |
| Imperial Valley Oil Co., No. 1 Brawley, Imperial Co. | 36-11-10 | 3,240 | suspended |
| McGregor Synd., No. 1 Del Mar, San Diego Co. | 17-14- 3 | 1,265 | suspended |
| Borderland Oil Co., No. 1 Encinitas, San Diego Co. | 12-13- 4 | 2,519 | suspended |
| Borderland Oil Co., No. 1 Point Loma, San Diego Co. | 30-16- 3 | 4,175 | gr. sd. drilling |
| Carr, O. K., No. 1 Capistrano, San Diego Co. | 13- 8- 8 | 4,898 | hd. sd. drilling |
| Grey, H. H., No. 1 Redlands, San Bernardino Co. | 25- 1- 2 | 2,392 | suspended |
| San-Col Oil Co., No. 1 Colton, San Bernardino Co. | 18- 1- 4 | 240 | hd. sd. drilling |
| Girard & Grimes, No. 1 Corona, San Bernardino Co. | 8- 2- 8 | 1,549 | suspended |
| Western Gulf, No. 1 Santa Ana, Orange Co. | 12- 3- 8 | 900 | gr. sd. drilling |
| The Texas Company, No. 1 Olive, Orange Co. | 7- 4- 9 | mtl. | building rig |

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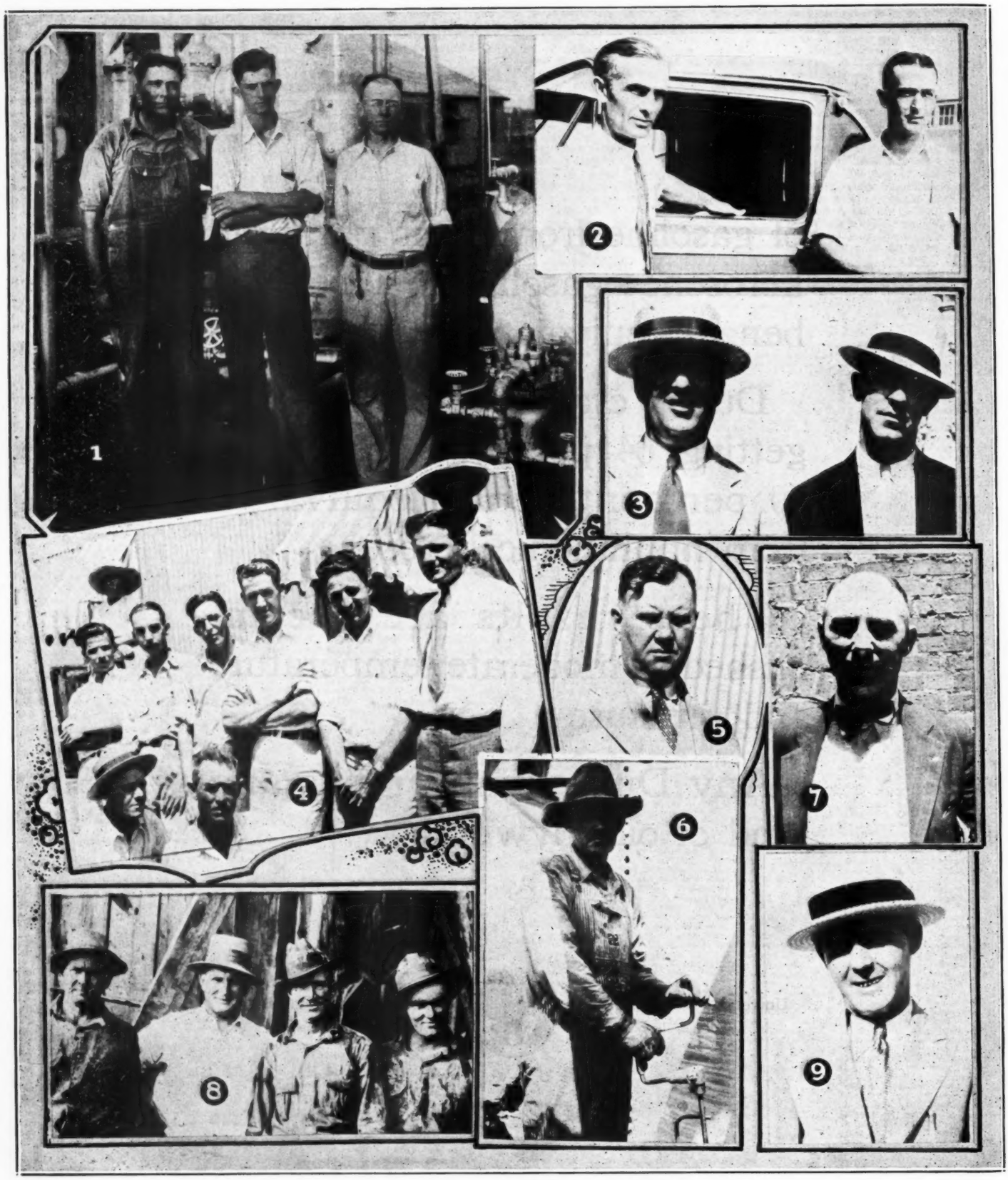

1—C. F. Blankenship, engineer; R. L. Norris, still man; and W. L. Isaacs, chief operator, Skelly gasoline plant, Liman, Okla. 2—H. R. Chamberlin and Joe P. Golding, Continental Supply Co., Wichita Falls, Tex. 3—F. A. Flaskamp, St. Louis; and W. S. Hovis, Fort Worth, Broderick & Bascom Wire Rope Co. 4—Warehousemen of Pure Oil Co., Van, Tex. Left to right: Sharkey Seller, Bill Seyfert, Elvis Hitt, A. L. Lloyd, R. P. Stanton, A. J. Welborn, (Simms Oil Co.), and Wayne Thompson. Bottom row: W. W. Lester and A. L. Stroub. 5—H. R. Gruber, vice president, Union Wire Rope Corp., Kansas City, Mo. 6—C. A. Cauthorn, tank builder, Grand Saline, Tex. 7—O. F. Torbron, vice president, Marlow Belting & Rubber Co., Fort Worth, Tex. 8—A. E. Blevin, tool dresser; F. W. Swift, tool pusher, Moran Drilling Co.; Art Andrus, driller; and C. W. Cherry, water pumper, Wichita Falls, Tex. 9—L. B. Rowsey, general manager, Smith Separator Co., Tulsa.

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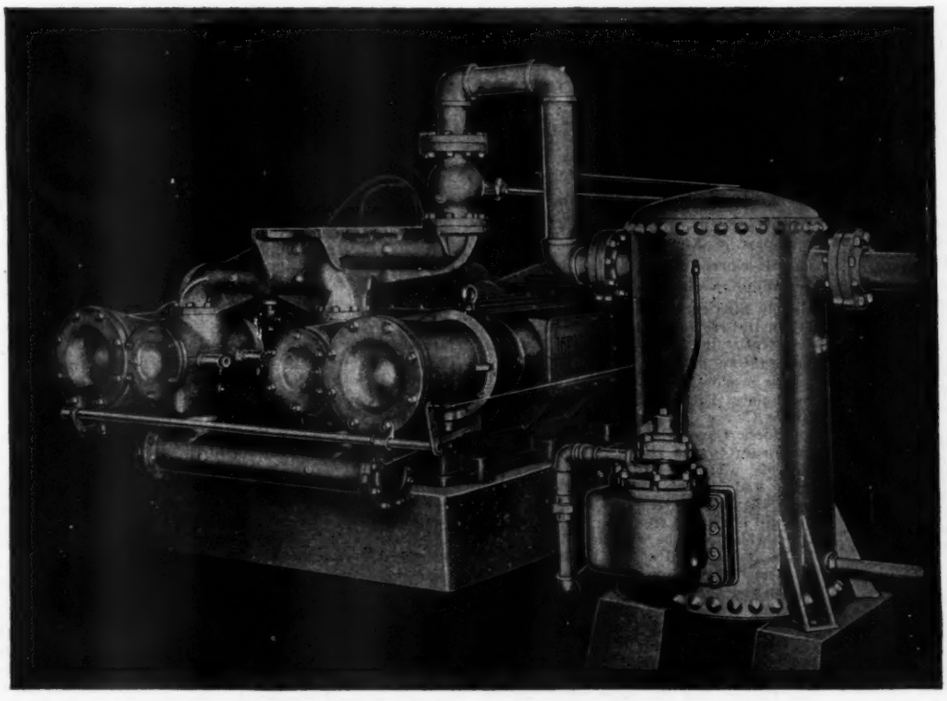


IDEAL-AJAX 12 x 12 Roller Bearing Piston Valve Engine with extra-heavy, large-capacity Steam Separator

# Central Ohio Leading In Activity

## Other Divisions in Central West Almost Shut Down by Weather Conditions. Hardin County Most Active

By George A. Whitney
*Staff Correspondent, Central West Fields*

FINDLAY, Ohio, Dec. 8.—The only division in the Central West Field that showed any activity was the central Ohio area, and not as much work was reported from that area as is usually the case, while the other divisions are almost shut down on account of weather conditions.

In the old Lima Field of northwestern Ohio the most activity is shown in the Kenton Field, in Hardin County, but only one completion was reported from that part of the field, Eagan & White's No. 1 on the Phoebe L. Gardner farm, Section 12, Cessna Township, which shows for a light gas well and about 10 bbls. initial in the Trenton at a total depth of 1,424 feet. There are now six strings of tools running in Cessna Township, and about the same number in Pleasants Township, and one in Blanchard Township. In Pleasants Township, Barnaby and others are drilling No. 5 Jacob Kurt farm, Section 6; Pleasants Oil & Gas Co. is drilling No. 3 Minnie Burnison, same section, along with others in both townships; Bert Sheldon is starting No. 2 Fred Kurt, Section 6, and the Kemrow Co. No. 1 Ronald Winter, Section 7.

Young & Geselchen abandoned No. 2 W. E. Cook and No. 2 Mary Foster, both in Section 34, Moulton Township, Auglaize County. N. T. Steoudt and others abandoned No. 1 W. M. Price and No. 1 William H. High, both in Section 36, Liberty Township, Ven Wert County. A. A. Lauber abandoned Nos. 1 and 2 Frank Bruns, Section 21, Butler Township, Mercer County, and is drilling No. 1 J. A. Yaney, Section 20, same township. Eilerman Oil Co. abandoned No. 4 Anna Eierman, Section 36, Cynthian Township, Shelby County, also No. 2 J. W. Klocker, Section 34, same township.

Jones & Coyle are drilling on the Mary Chaney and others farm, Section 8, Tymochtee Township, Wyandot County.

### CENTRAL OHIO

Central Ohio experienced a rather quiet week so far as completions are concerned, there being a total of 19, of which 6 were oil producers with an initial production of 59 bbls., 7 dry holes and 6 gas wells, while there were 8 new locations made and 14 wells started spudding, a total in new work of 22, the lightest for some time.

In Ashland County, the Ohio Fuel Gas Co. reports No. 1-5,325 John Criswell farm, Section 14, Greene Township, dry in the Clinton lime. In Lake Township, Robinson and others' No. 3 Fred Bird farm, Section 5, pumped 5 bbls. from 640-63 feet, while their No. 3 Phillip Doerr farm, Section 16, was a dry hole. Same parties are drilling No. 6 C. I. Sellers, Section 9; No. 4 Fred Bird farm, Section 5; and No. 5 Henry C. Young farm, Section 22, and Wile and others are drilling No. 5 Henry Mosher farm, Section 22.

In Medina County, Harrisville Township, the Ohio Fuel Gas Co. found a broken formation in the sand in No. 1-5,336 William L. Barnhart farm, Section 29, and is dry. In Chatham Township, same county, and in the old Chatham Pool, where oil is found at a comparatively shallow depth, a few nice producers were uncovered. Edson and others' No. 9 on the Archie E. Packard farm, Lot 6, produced 20 bbls. initial from 311-74 feet. Same parties' No. 7 Marcus A. Frank farm, Lot 20, pumped 10 bbls. initial from 421-62 feet. No. 8, same farm, was a natural producer, with an initial of 36 bbls. from 417-68 feet. Same parties drilled a dry hole in No. 35 W. and R. Ripley farm, Lot 1, also a duster in their No. 10 George W. Packard farm, Lot 4, from 424 feet, having failed to get a pay sand, which is characteristic of that area. No. 11 is drilling for the same company on the George W. Packard farm; No. 10 drilling on the Archie E. Packard, Lot 6; No. 9 Marcus A. Frank, Lot 20, and No. 36 on the W. & R. Ripley, Lot 1.

#### Lorain County

In Lorain County, Carlisle Township, Ohio Fuel Gas Co.'s No. 1-5,344 on the Harold E. Rowley farm, Lot 9, is reported dry, there being no sand found.

In Wayne County, Chester Township, Harmon & George are starting a second test on the Effie M. Bates farm, Section 20, and drilling No. 2 Lewis Howman farm, Section 32, Congress Township.

In Holmes County, Arkansas Fuel Oil Co. is drilling No. 4 James T. Patterson farm, Section 12, Monroe Township.

In Summitt County, Greene Township, Stoltz Oil & Gas Co. is drilling No. 2 Katherine Selzer farm, Section 7, from the Newburg formation to the Clinton lime.

Licking County has a new location for the Everett Gas Co., No. 3 Felix Claypool farm, in Hanover Township. Wehrle Gas Co. is starting a well in the corporate limits of Newark, in Newark Township, on the Charles Flory property.

In Muskingum County, Washington Township, the Atha Co.'s No. 1 Butts-Inhoff farm, in the fourth quarter section, is a fair gas well and a 3-bbl. pumper at 4,092 feet. Same company is reported to have found a dry hole in No. 1 on the L. M. Bryan farm, Section 22, Perry Township, at 4,385 feet. Wittmer Oil & Gas Co. is starting a test on the Sidney A. Taylor farm, Section 20, same township. Fritz Oil & Gas Co. is starting a test on the Ray G. Pletcher farm, Section 4, Brush Creek Township.

In Athens County, Alexander Township, Park Browser and others have a fair gas producer in No. 3 on the Charles B. Wood farm, Section 20, from 1,483-88 feet. Shady River Oil & Gas Co. has an average gas well in No. 12 F. W. Chapman farm, Section 26, Carthage Township, from 1,229-34 feet. Whitmer and others' test on the Henry B. Schoil farm, Section 24, York Township, was dry at 3,307 feet, while Noah Andrews found a fair gas well on the William Powell farm, Section 23, same township, and J. J. Walters and others are drilling No. 2 Baird Brothers farm, same section.

#### Tuscarawas County

In Tuscarawas County, Washington Township, Gordon Oil Co. is starting a test on the Clarence Hogue farm, Sections 29-30. Lynch Oil Co. is starting No. 3 Robert McKeen farm, Sections 21-22, Oxford Township.

In Stark County, Wittmer property, trustee, is drilling on the E. R. Donneworth farm, Section 10, Lawrence Township.

In Belmont County, Somerset Township, Washmuth-Callahan Gas Co. has a light gas well on the Butler-Davis farm, Section 23, in the Berea sand from 1,652-62-64 feet. M. W. Fulton and others are drilling No. 1 Lee and Cora Hastings farm, Section 27, and John Jefferies and others are drilling No. 1 Charles Jefferies, Section 27-35, same township. A. C. Peters and others are starting No. 3 W. T. Lyne, Section 20-26, and Central Gas Co. is starting No. 3 D. L. Hagan, Section 1, same township.

In Carroll County, Orange Township, Local Oil Co.'s test on the Frank M. Forbes farm, Section 28, produced 5 bbls. initial from the Berea sand from 1,020-80-1,100 feet.

In Geauga County, Parkman Township, Wittmer property, trustee, is drilling on the Eli N. Miller farm, Section 10.

### INDIANA

New completions were few in Indiana during the past few weeks and there is little chance for a pickup in field work owing to the closeness of winter. Reports from Stringtown in Vandeburg County are that the Vandeburg Oil Co. struck a nice gas showing on the George Hoenby farm, at a shallow depth of 250 feet, which may bring about some additional test work in that vicinity.

In Pike County, Washington Township, T. N. Savage and others' No. 3 in the southwest corner of the Byron Preston farm, NW, Section 30, pumped 70 bbls. initial from a depth of 1,126 feet or 8 feet in the pay sand. Charles C. Taliaferro, Jr., struck a gas well estimated at 3,000,000 feet in the northeast corner of the Matilda Bilchuback farm, S half, Section 23, same township, from 1,050-57 feet. A. B. Bement's No. 1 Phoebe McAtee farm, Section 13, Clay Township, same county, is reported good for 1,000,000 feet of gas. Mahutska Oil Co. is drilling No. 1 Joseph A. Davidson farm, Section 20, same township.

Lee Petroleum Co. is drilling on the Andrew Hansel, Section 10, Harrison Township, Daviess County. Norris, Patterson and others are drilling on the Joseph Haskins farm, Section 4, same township.

W. C. McBride, Inc., is drilling No. 1 Mary Mellen farm, Section 35, Hart Township, Warrick County.

San Juan Coal & Oil Co. has reported gas showing in No. 1 Arthur Hanrahan farm, north of Valparaiso, in Porter County.

### ILLINOIS

The only completion reported from the Illinois fields for the week was the Associated Producers Co.'s No. 54 well, 449 feet from the south line and 867 feet from the east line of the A. E. Dorsey farm, SE, Section 7, Parker Township, Clark County, and on Parker Prairie, which has been made a pressure well.

Gus Lowery and others are starting No. 5 on the J. P. Evans farm, Section 36, Prairie Township, Crawford County, and the O. R. Oil & Gas Co. is drilling No. 1 O. H. Smith farm, same section. W. C. McBride, Inc., is drilling No. 1 Laughead heirs farm, Section 3, Montgomery Township, same county.

In the western part of Illinois, southeast of St. Louis, Reihl and others are drilling No. 1 on the Thea Karr lot, Section 21, Sugar Loaf Township, St. Clair County, and in the town of Dupo. In the same section, William J. Abbott has abandoned No. 1 A. Osick, and Joe Weiss has abandoned No. 1 Phillips farm, in Carbondale.

In Madison County, Painter, Goethe and others are drilling No. 1 F. E. Culy farm, Section 35, Fosteburg Township; No. 1 Tom Mengan farm, Section 26, and have a rig up for No. 1 F. C. Klinke farm, Section 34, all in the same township.

# LAGRANDE POOL CONTINUES BUSIEST DRILLING POINT IN KENTUCKY AREA

By George A. Whitney
*Staff Correspondent, Kentucky Fields*

GLASGOW, Ky., Dec. 8.—The Lagrande Pool, north of Glasgow, in Hart County, is the busiest drilling point in any part of Kentucky at this time and has developed into a real oil field, and according to oil men appears much like the old Sinking Creek Pool, in Lee County, in the eastern part of the State, and the Scottsville Field in Allen County in the western portion.

The production of the pool has grown so rapidly that the line of the Stoll Refining Co., of Louisville, from the pool to Horse Cave where it is handled by tank cars to the company's refinery, is not of sufficient capacity to take the crude and instead of laying another line from the pool to Horse Cave, the Stoll Co. will lay a line from the pool to Louisville, which will be a 4-inch line.

The banner well of the Lagrande Pool is a new completion just made by Carpenter and Frost in No. 1 on the Carden-Dowling farm, which is said to have produced an initial of 800 bbls. from a depth close around 650 feet and in the Corniferous formation which has proved so productive in the Big Sinking Pool in Lee County and the Scottsville Pool in Allen County. Carpenter and Frost's No. 1 on the Peyton heirs farm, was reported around 120 bbls. initial. The only dry hole reported for the week was Norris and others' No. 1 Mitt Richardson farm.

#### New Lagrande Pool Wells

Dulworth & Taylor's No. 4 Louis Garvin farm, northwest of the discovery well a few miles, is estimated around 100 bbls. and No. 5 same farm, at 100 bbls. initial. Rex-Pyramid Oil Co.'s No. 2 W. E. Peyton farm, same pool, is rated good for close to 450 bbls. the first 24 hours. Lagrande Oil Co.'s Nos. 3 and 4 B. Ross farm, are reported at around 100 bbls. each. H. F. Norris and others' No. 2 E. T. Smith farm, is another nice producer, with an initial around 250 bbls. Norris and others' No. 1 B. Richardson farm, is reported around 100 bbls. initial.

#### Greene County

The recent completion of a gas well rated around 5,500,000 feet, drilled by unknown parties on the Walter F. Milby farm, about a mile from Greensburg, the county seat of Greene County, has opened what is looked to be another prospective pool, and a few strings of tools have been moved to different parts of the county. Carpenter & Frost are starting a well on an unknown lease in the northwestern part of the county. Combs & Stevens have moved two strings of tools and are already reported spudding near Powder Mills, and Courtney Combs is starting a well on the Given Brothers property, same county.

Owing to the part shut down in the Owensboro Field, many strings of tools are moving into Greene, Hart, Barren and other adjoining counties, for it is the supposition of many oil country men that many productive pools will be opened up if the weather does not get too cold to work during the winter.

Just across the Hart County line in northern Barren County, and about 3 miles southwest of the McKinney discovery well of the Lagrande Pool, C. C. Smith's test on the Herschel Allen farm, is reported a nice gas well.

In the Niagara Pool, in Henderson County, the Imperial Oil & Gas Products Co.'s No. 3 Hodges Griffin farm, is good for 2 bbls. in 24 hours.

In Webster County, Sebree Field, reports are that the Central Gas Corp. drilled in two gas wells on the Spence and Milton farms. This is an area that

(Continued on Page 226)

# Good Producer in the Dalhousie Sand

## Several Wildcats Nearing Interesting Stage in Canadian Foothills. Official Production Figures in Alberta

By Victor Lauriston
*Staff Correspondent, Canadian Fields*

CHATHAM, Ontario, Dec. 6.—In the South Turner Valley, Home Oil Co.'s

No. 6, Section 20-19-2w5, looks like a good producer of light crude from the Dalhousie sand. The test was cemented at 4,681 feet and on deepening to 4,689 feet a strong flow of light crude was struck. A production test is being made. When this is completed, drilling will be continued to the producing horizon in the Madison lime and production taken from both levels. Unofficial reports place the potential light crude production at 160 bbls. a day, making it one of the largest producers yet developed in the Dalhousie.

In Section 17-19-2w5, Mayland Oil Co.'s No. 3 is cleaning out preparatory to testing production after a shot at 6,177 feet. This test is several hundred feet in the lime. Mayland's No. 4 is standing cemented at 1,184 feet, and No. 6 is standing cemented at 256 feet. Lowery Petroleums' No. 2, NW, same section, is drilling at 4,186 feet. Southwest Petroleum's No. 2, Section 8-19-2w5, is drilling at 870 feet. Southern Lowery's No. 1, LSD 3, Section 9-19-2w5, is at 4,170 feet and pulling 8⅝-inch casing. Royalite Oil Co.'s No. 24, LSD 3, Section 29-19-2w5, is drilling in the top of the lime at 5,274 feet.

In Central Turner Valley, Royalite Oil Co.'s No. 20, LSD 7, Section 12-20-3w5, is cleaning out after a shot in the lime at 5,180 feet. Royalite's No. 25, Section 31-19-2w5, is drilling at 3,940 feet.

Mayland Oil Co.'s No. 3, now being tested, is one of the more important "boundary" wells in the field, and results secured will throw considerable light on the west side of the structure south of Mayland's No. 1.

### South Turner Valley

In the extreme south end of the South Turner Valley area, Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is reported rigged up practically ready to spud in. The test is on acreage subleased from Anaconda Oil Co.

In Section 4-19-2w5, Mercury Oils' No. 1, LSD 13, is resuming after cementing 97 feet in the lime at 5,372 feet. Mercury's No. 5 is making new hole at 4,633 feet; and Mercury's No. 7 has been cemented back with casing at 1,185 feet and bottom somewhat lower. In Section 5-19-2w5, Miracle Oils' No. 2, LSD 16, is reported rigged up.

In Section 16-19-2w5, East Crest Oil Co.'s No. 3, LSD 4, some 380 feet south of No. 2-A producer, is reported making new hole after setting conductor pipe at around 45 feet. In Section 9-19-2w5, Commonwealth Petroleums' No. 1, LSD 7, is reported straightening preparatory to deepening hole from 4,420 feet.

In Section 20-19-2w5, Calmont Oils' No. 4, LSD 11, is cleaning out after a shot in the lime at 5,084 feet. Calmont's No. 2 producer has completed experiments with new adjustments to the piping, intended to secure larger recovery from the big wet gas flow, but results have not yet been definitely determined. Wellington Oil & Gas Co.'s No. 1, LSD 1, has recovered tools lost when the well was brought in some months ago, and is cleaning out and deepening. The well originally made around 175 bbls. against the tools, but this later declined to about 82 bbls. Wellington's No. 2, same LSD, will probably be started as soon as No. 1 is once more definitely in production.

### Central Turner Valley

In the Central Turner Valley area, Okalta Oils' No. 2, LSD 8, Section 1-20-3w5, is reported deepening 320 feet in the lime at 5,100 feet after encountering a measured wet gas flow of 12,500,000 feet a day. The gas flow is gradually increasing. McLeod Oil Co.'s No. 5, LSD 15, is drilling in the deep lime at 5,030 feet. Sioux City Oils' No. 1 deep test, LSD 10, is still testing production at 6,185 feet.

In Section 12-20-3w5, New McDougall-Segur Oil Co.'s No. 2, LSD 14, is making new hole 40 feet in the Madison limestone. No. 2 is drilling 592 feet in the lime at 5,650 feet. British Dominion Oil Development Corp.'s No. 3, LSD 6, is drilling near the bottom of the Dalhousie sands at 3,920 feet. Widney Petroleums' No. 1, LSD 11, is drilling at 4,840 feet, about 160 feet off the lime.

Structure Oil & Gas' No. 1, LSD 7, Section 31-19-2w5, is making new hole after cementing in the lime at 4,870 feet. Control head and separators have been placed to handle production, and the outfit is running three shifts.

Dome Oils' No. 2, LSD 16, Section 36-19-3w5, is reported drilling at 3,900 feet with a fair show of light crude in the Stockman sands.

In the north end of the Central Field, Spooner Oils' No. 4, LSD 14, Section 13-20-3w5, is drilling 205 feet in the lime at 5,275 feet, after getting a wet gas flow, around 5,500,000 feet, at 140 feet in the lime. Drilling is being continued to the second producing zone in the lime. Richfield Petroleums' No. 2, LSD 12-13, is drilling in the Dakotas at 2,850 feet.

In the north Turner Valley, Anaconda Oil Co.'s No. 1, LSD 16, Section 22-20-3w5, is reported preparing to resume at 3,575 feet, after a shutdown of several months.

### Drilling in the Foothills

In the foothills belt, several wildcat tests are nearing an interesting stage. On the Herron structure, north and west of Turner Valley, Herron Petroleums' No. 1, has finished running 8⅝-inch casing to 3,250 feet, following several strong gas shows. At this depth the test is 530 feet in the Madison lime, which shows pronounced discoloration.

On the Moose Mountain structure, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is drilling at 4,155 feet in a hard capping formation covering the Dalhousie sand, and appears to be near potential production.

In the Pincher Creek area, close to the Montana boundary, Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, has finished a small fishing job and resumed drilling in the Fernie shales at around 2,185 feet, with small shows of oil and gas reported. Further south and east, Alberta Gas & Fuel Co.'s No. 1 Yarrow, LSD 16, Section 34-3-30w4, last reported at 2,580 feet, is held up by heavy snows and extremely bad weather.

On the Rickert structure, Paramount Oils' No. 1, LSD 2, Section 28-19-4w5, is at 2,286 feet and repairing.

On the Moose Dome, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is at 2,782 feet and waiting for new equipment to sidetrack.

On the Waite Valley structure, Calgary Development's No. 1, LSD 10, Section 21-19-3w5, is reported fishing at 3,170 feet.

In the High River-Aldersyde area, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is making new hole at 4,445 feet.

In the Paintearth Creek area, Hudson's Bay Oil & Gas Co.'s No. 1 Paintearth, LSD 5, Section 27-39-15w4, is making new hole at 2,577 feet.

### Red Coulee Field

On the Montana end of the international Red Coulee structure, Monalta Oil Co.'s No. 2 Buckley, Section 1-37-4w, is reported drilling into production after recementing against water. The test has been delayed by weather conditions.

On the Alberta end of the structure, Dixie Oil Co.'s No. 15, Section 7-1-16w4, is unofficially reported to have a show of light crude in the upper sands. The outfit is waiting for casing before drilling into the sands for a test. Dalco Oil & Gas Co.'s No. 2, LSD 7, Section 19-2-17w4, is reported temporarily shut down at 2,200 feet owing to bad weather.

### Border Fields

In the border areas, southern Alberta, Alberta Pacific Consolidated's No. 1, Section 15-4-23w4, on the Spring Coulee structure, is reported drilling steadily at 4,486 feet.

Near Warner, Anglo-Western Oils' No. 1, LSD 1, Section 12-4-17w4, is reported shut down at 187 feet.

On the Milk River structure, Commonwealth Petroleums' No. 1, LSD 9, Section 9-3-15w4, is drilling in an oil saturated sand of the lower Devonian formation at 4,575 feet.

In the Keho Lake area, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is standing cemented at 2,080 feet.

On the Lethbridge structure, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, has spudded in and is running three tours and drilling at 154 feet.

On the Montana side, Western Natural Gas Co. is testing a well in the Sunburst sand at 2,060 feet, and is reported preparing to drill a second test on the township adjoining the boundary and about 30 miles east of Coutts. International Royalty Co.'s test on the Grandview structure in the Sweetgrass Hills is drilling near completion after running casing to 2,410 feet.

### Atlantic-Keystone Operations

A number of executives of directorate of Atlantic-Keystone Petroleums, Ltd. arrived in Calgary recently from Vancouver to inspect some of the company's holdings on various Alberta structures, preparatory to formulating plans for development work next spring. The party included Col. Frank Wilbur Smith, president; Frank L. Buckley, vice president; Thomas A. Collins, production manager and J. W. Hefferman, director. No definite decisions have been made public as to the company's plans for the coming season, and reports that E. L. Doheny and associates are interested in the venture lack official confirmation.

### East-Central Alberta

In the Wainwright Field, east-central Alberta, drilling operations are reported practically at a standstill. In a recent storm a number of derricks, including those of the Maple Leaf, Bethwain, Oil Selections and Sasko-Wainwright companies were demolished.

In the Ribstone Field, Algonquin Petroleum's No. 1, LSD 1, Section 20-45-1w4, is reported spudding in. Rayco Oils, Ltd. has located its No. 1 test in LSD 3, Section 4-7-1w4, about 2 miles from Rivercourse station on the C.P.R. branch line running southwest of Lloydminster. Derrick materials are on the ground. Ray L. Cook of Ribstone Oils, Ltd. will handle the drilling.

### Official Production Figures

The federal department of the interior has issued a statement covering petroleum production in the various Alberta areas for August. These represent the latest figures available for the smaller fields. For the month, the Alberta end of the Red Coulee Field produced 6,423 bbls. of light crude, or an average of around 207 bbls. a day. Production from the Skiff Field was intermittent, and totaled 619 bbls. of heavy crude, an average of 20 bbls. a day. The Wainwright Field delivered 718 bbls. of heavy crude, or 23 bbls. a day, which is considerably less than its reputed potential production. The Ribstone Field, with a larger potential production, is shut in. The Turner Valley production for August is officially reported as 115,369 bbls. of crude naphtha and 2,596 bbls. of light crude. Alberta production for the month increased 25,066 bbls. over the same month of 1929.

### British Columbia Tests

In the Cariboo district, British Columbia, Frank Patrick Syndicate's No. 1 near Australian is reported drilling close to 500 feet. The test spudded in last October, and is located on acreage of the Cariboo Coal & Clay Co., subleased by the Patrick syndicate on one-eighth royalty. The area was geologized by A. W. Baxter of Calgary. J. F. Harrison has the drilling contract.

In the Kelowna district, E. G. McKenzie & Co.'s No. 1 at Canyon Creek has spudded in. Location is S.2-E26-Osoyoos, near the junction of Mission and Canyon Creeks and about 9 miles from Kelowna. The area was geologized by Julius Rickert of Calgary. Mission Creek showed oil and gas seepage and considerable bituminous outcrops. The Janssen Drilling Co. of Seattle has the contract with James Elsea in charge.

### Saskatchewan Test

In southeastern Saskatchewan, Simpson Oil Co.'s No. 1, Section 9-29-25w2, is reported around 2,500 feet and drilling in a brown shale strata with fair shows of oil and gas. Commercial production is thought possible when the drill re-enters the lime.

### Manitoba Operations

In the Manitou district, southwestern Manitoba, Commonwealth Petroleums' No. 1 structure test is reported drilling at 600 feet.

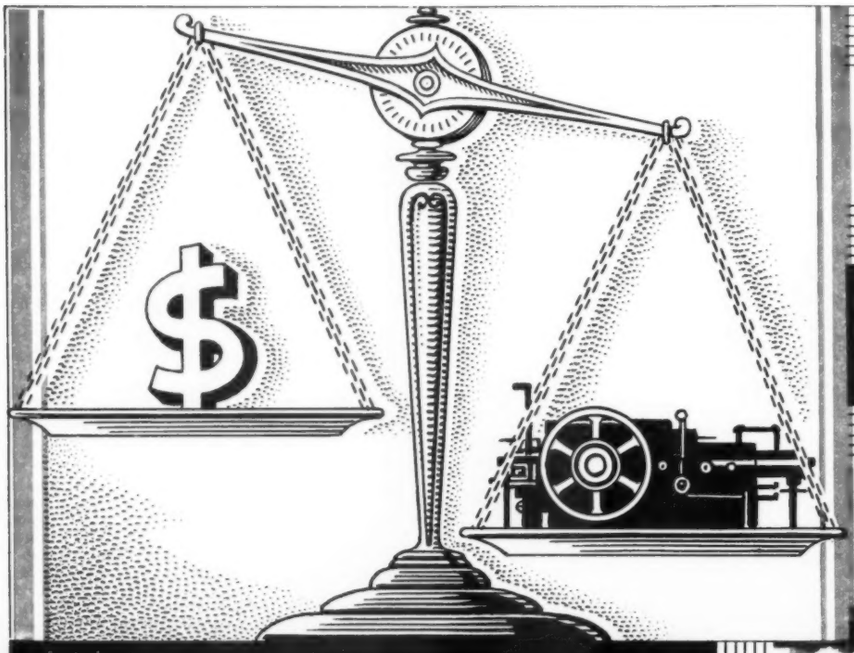
### Ontario Drilling

In Ontario drilling is continuing on the Six Nations Indian Reserve near Brantford. Petrol Oil & Gas Co. has finished a new gasser 1½ miles south of the nearest producer. The new well got an estimated production of 70,000 feet a day in a shallow horizon at around 500 feet. Ajax Oil & Gas Co.'s No. 10, on acreage subleased from the Petrol company, has finished a small gasser.

A new wildcat test is under way in Grey County near Meaford, where a syndicate is drilling at 1,370 feet on the Brown farm, Concession 9, in what is known locally as the Penn-Ryan Field. The test has been shut down waiting for cable, but is resuming. It is reported the Penn-Ryan syndicate has let contract for a test on the Theodore Johnston farm, town line, drilling to start this month. About six years ago some shallow gas was struck on this farm between 70 and 165 feet.

### New Brunswick Development

Word has been received from England by Sir George Perley, acting premier at Ottawa, that British interests will next summer undertake the production of motor fuels and lubricants from the New Brunswick oil shale deposits. The deposits are very extensive and tests have indicated a satisfactory production of oil from the shale, with a considerable by-product of ammonium sulphate. Some years ago interests associated with the Anglo-Persian Oil Co. carried on considerable experimental work with the shales, but owing to the increasing world production of crude oil, projected commercial development was not carried out. The plans of the British interests also contemplate a large refinery in Ontario and a smaller one in the maritime provinces.

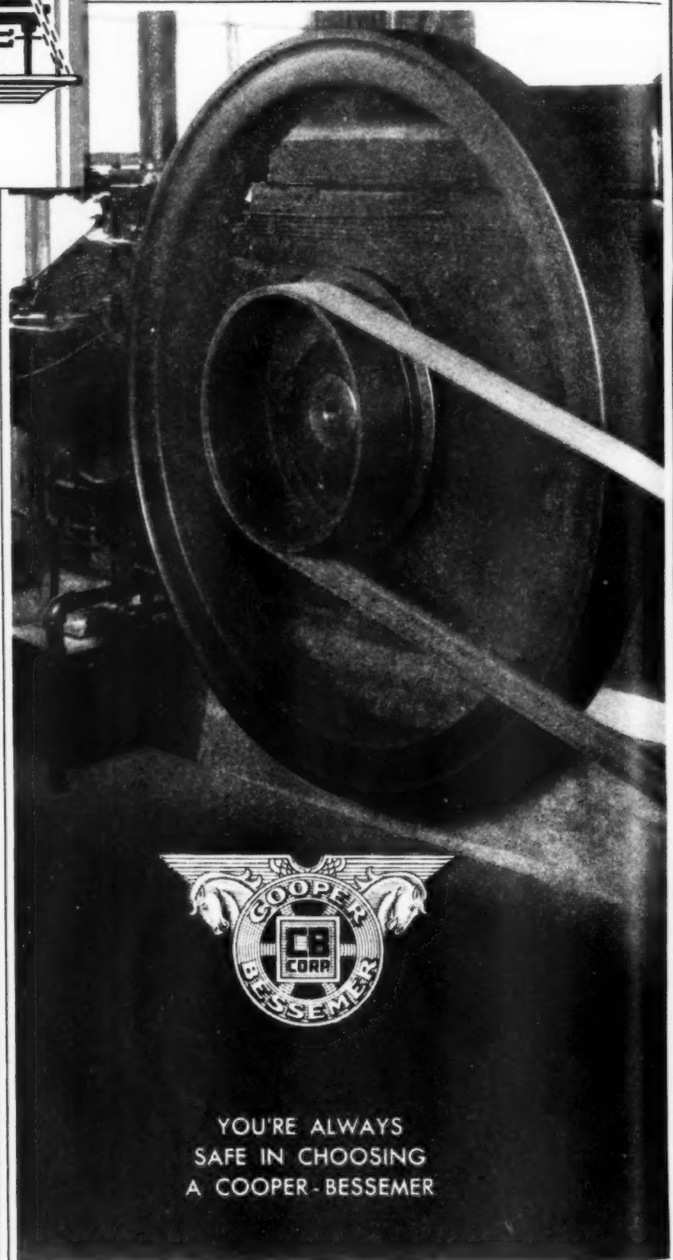


# LIGHT HEAVY

TROUBLE-FREEDOM! That's what the small producer wants. And that's what he gets with this 60 B.H.P. direct driven compressor unit. What a record it has made for itself! During more than three years of grueling service, no Type-16 owner has ever reported trouble traceable to construction—either in crankshaft or bearings. Besides being easy and cheap to haul, install and maintain, the unit is inexpensive to operate. It is readily convertible for gas or oil fuel, and may be equipped for semi-automatic operation. An interesting Bulletin tells about these and other features: oversize die-forged crankshaft; railway-size Timken main roller bearings; yoke-type compressor drive; easily adjustable chain driven layshaft.

THE COOPER-BESSEMER CORPORATION

MOUNT VERNON, OHIO GROVE CITY, PENNSYLVANIA

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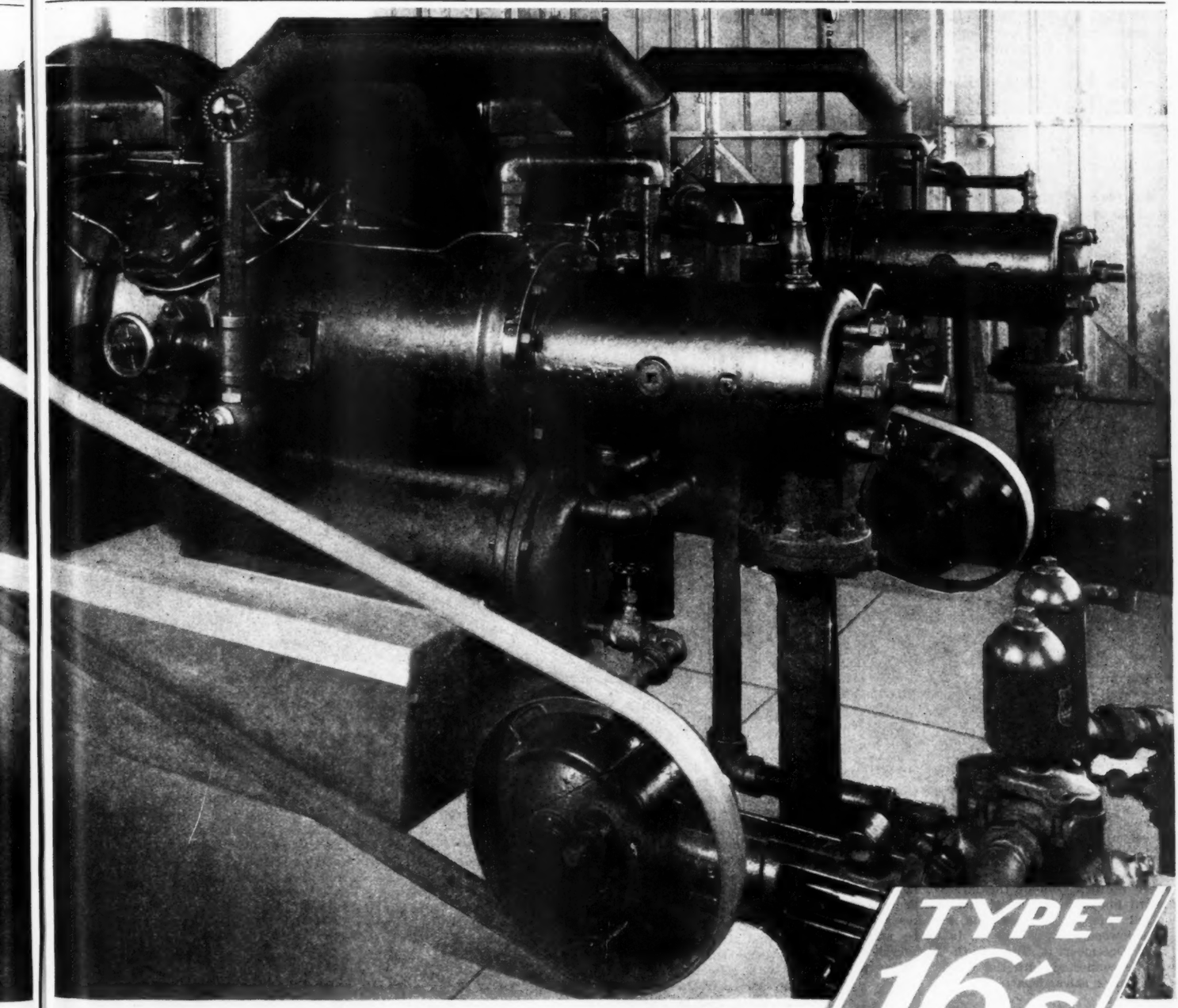


TYPE-16's

# BESSEMER

# Personal Paragraphs About Oil Men

Edward Smith, who has been in the Mount Pleasant, Michigan, Field, for some time, has left for his home in Chicago, Ill.

* * *

J. A. Cree, of Mount Pleasant, Mich., and Utica, Ohio, spent two weeks at Eldorado, Kans., Tulsa, and Oklahoma City, Okla.

* * *

Dr. Charles C. Ross, supervisory mining engineer of the Canadian department of the interior, returned to Calgary recently from Chicago, and will leave shortly for Ottawa.

* * *

John McFadyen, vice president and general manager of the western division of the Ohio Oil Company, has returned to Casper, Wyo., from the company's headquarters in Findlay, Ohio.

* * *

Word has been received of the marriage at London, England, of Charles William McAlpine, formerly of Petrolia, Ontario, to Miss Bessie Francis, daughter of Mrs. Anna Francis of London.

* * *

J. B. Arthur, manager of the Union Oil Company's fuel oil and asphalt sales department, has returned to his Los Angeles, Calif., office following an absence of several months spent in the Orient.

* * *

C. A. Holden, general counsel for the Douglas Oil Company, Tulsa, made a business trip to San Angelo, Tex., during the week. The company has a district office at the latter place under supervision of V. L. Crowell.

* * *

Joseph M. Konin, assistant superintendent of the Bureau of Technical Standards Giproneft, Muscow, is conducting a survey of refining conditions in the United States. Accompanying him are A. D. Demchenko and L. M. Edemsky of Grozny.

* * *

H. J. Bossart, assistant general superintendent for the Midwest Refining Company, has returned to Casper, Wyo., from Ririe, Idaho, where he superintended loading of drilling equipment for shipment from a wildcat on Little Grey's River.

* * *

Harvey Bates, of Brazos, Tex., with the Lone Star Gas Company, dashed in front of a Texas & Pacific Railroad passenger train and saved the life of little Sammy Seale, aged 5, when the little fellow was after his ball which bounced upon the tracks.

* * *

Dr. T. Sutton Bowman, who returned to England last May, to undertake private research work, after several years in Venezuela as petroleum geologist to the Royal Dutch-Shell organization, is sailing shortly for India to undertake a geological investigation on certain areas in India.

* * *

The Sinclair Oil & Gas Company has closed its production offices in Fort Worth, Tex., moving Mel Shugert, who has been in charge, to Tulsa, and H. L. Hensel to St. Louis, Okla. Tulsa will handle the southwestern district which covers Arkansas, Louisiana and Texas, outside of the Gulf Coast.

* * *

Arthur Stewart, son of the late W. L. Stewart, who until his untimely death was president of the Union Oil Company of California, left Los Angeles for Wynnewood, Pa., where he is to be married early in December to Miss Ruth Nicholson. Mr. Stewart is connected with the Union Oil Company of California's sales department.

* * *

M. O'Donnell, director of merchandise for the Oil Well Supply Company, Oil City, Pa.; A. F. Pitts, divisional material manager for the same company, Tulsa; and P. D. Ritchey, divisional sales manager of the company at Tulsa, are making a trip through Texas, New Mexico, Louisiana and Oklahoma, visiting the various stores and offices of the company in these States.

Robert Johnson and E. Clies, of Shelby, Mont., recently made a trip by airplane to Lethbridge and Calgary.

* * *

A. C. Easterwood, Jr., scout for the Continental Oil Company, Amarillo, Tex., is convalescing from an operation for acute appendicitis.

* * *

Reg McDermid, of Sarnia, left recently via New York for Talara, Peru, where he will rejoin the International Petroleum Company staff.

* * *

Barr W. Musser, general superintendent of operations for the Utah Oil Refining Company, was in Casper, Wyo., for several days recently.

* * *

L. R. Roberts, who for many years was process superintendent at the South Wales refinery of the Anglo-Persian Oil Company, has joined the London office staff of The Texas Company.

* * *

Robert E. Wilson, assistant to the vice president and head of the development and patent department of the Standard Oil Company of Indiana, is now in charge of the research department.

## Men of the Industry

**David E. Day**

David E. Day, in charge of refinery engineering and research for the Richfield Oil Company, is well known among the engineering fraternity not only on the West Coast but in other active sections of the oil industry.

Mr. Day is one of the younger engineers born in the industry. He is a son of the late David T. Day, for many years one of the outstanding figures of the oil business. He was associated with his father for several years in the publication of Day's Handbook, widely circulated in the petroleum world. He received his education in the schools of Washington, D. C., the University of Wisconsin and John Hopkins University.

For some time Mr. Day was a consulting engineer with offices in Washington, D. C., and San Francisco, Calif. In 1923, he joined the Richfield organization and he has been connected with the company since that time. During this period, the company has expanded rapidly in refining facilities with four plants in California, two of which are among the largest refineries on the West Coast.

Mr. Day, who makes his headquarters at the Los Angeles offices of the company, is a member of several professional societies and takes an active part in associational work.

C. S. Beesemeyer, vice president of the Gilmore Oil Company, has returned to Los Angeles, Calif., following an extended trip throughout the East.

* * *

George Clapp, well known throughout the oil fields east of the Mississippi River, is now located at Mount Pleasant, in the Central Michigan Field.

* * *

George H. Coxon, head of the refining and technical departments of the Anglo-Persian Oil Company, Ltd., has left London, England, for Persia.

* * *

John Wais, Rocky Mountain representative for the Reed Roller Bit Company, has just completed a survey of rotary drilling methods in use in the Oregon Basin Field district, northwestern Wyoming

* * *

Mr. and Mrs. R. D. Wallace and their son, Dwight, have returned to Casper, Wyo., from a motor trip to the Pacific Coast states. Mr. Wallace is land agent for the Prairie Oil & Gas Company.

* * *

Merrill R. Lott, of the Richfield Oil Company of California, recently addressed the National Association of Cost Accountants on the "Standards for Waste Elimination and Incentives for Performance."

* * *

Francis Kelliher, formerly of Casper, Wyo., but now auditor for Dixie Oil Company with offices in Tulsa, paid a short business visit to Casper recently, and during his stay was a guest at the Midwest Refining Company's residence.

* * *

H. J. Lockhart, vice president and general manager of the Parkersburg Rig & Reel Company, Parkersburg, W. Va., has been making a business trip to the company's Texas office at Fort Worth, and Mid-Continent offices in Oklahoma.

* * *

C. L. Wingate, district foreman, in charge of the Osage County, Oklahoma, production for the Prairie Oil & Gas Company, has resigned effective December 1, to join John Droppleman, as superintendent of production with headquarters at Wewoka, Okla.

* * *

P. G. Weidner, engineer at the head of the Midwest Refining Company's gas department in Casper, Wyo., accompanied by Tracy Shaw, who is at the head of the industrial relations department for the same company, have been in New Mexico on business.

* * *

Sam H. Carter, representative of the American Manufacturing Company of Chattanooga, Tenn., and Miss Andre Shugart of San Antonio, Tex., were recently married and made a trip through the southern states on their honeymoon. They are now at home in Fort Worth where Mr. Carter has headquarters.

* * *

Magnolia Petroleum Company is announcing the following changes in the personnel: C. A. Hill, of the Cement district, has been transferred to Laredo, Tex., and A. H. Proctor, at Mirando, Tex., to the Cement district. Lee Hudson, of the Healdton district and Harry Lamb of the Burkburnett district, have exchanged positions. H. B. Clifton has been transferred from Olden, Tex., to Haynesville, La., and A. H. Henderson from Haynesville, La., to Olden. They are all production superintendents of the company.

* * *

C. F. Robertson, of Nowata, Okla., has been made assistant manager of the Denver, Colo., division of the Continental Oil Company. He recently completed a survey of the territory in which his duties will lie. Leaving Oklahoma in Indian summer weather he went to Denver and ran into winter. From Denver to Helena, Mont., he traveled in an automobile with a gigantic snow plow propelled by big gasoline motors ahead to clear the highway of snow. Returning to Tulsa by plane he did not get out of the snow zone until western Kansas was reached.

# Summoning a Ghost to your bidding

1855
SEVENTY-FIFTH
ANNIVERSARY
1930

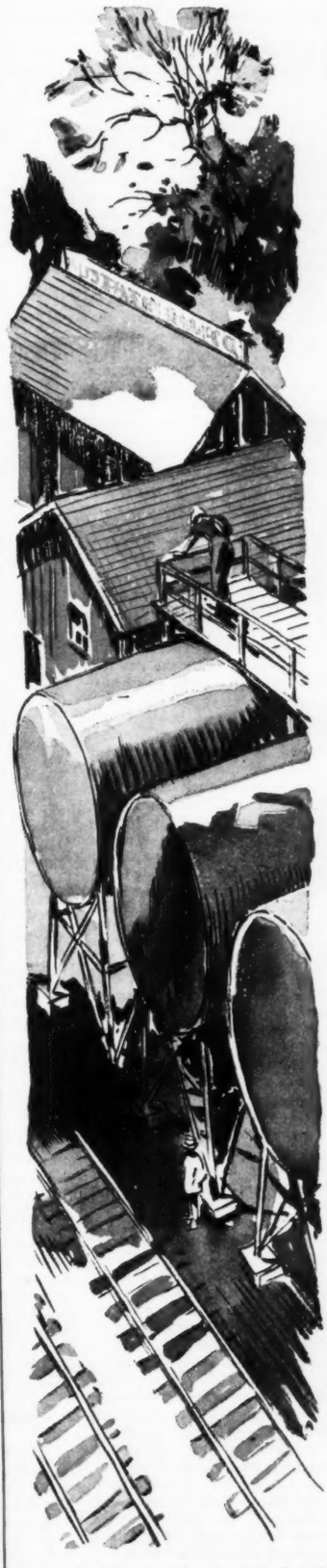
The chemist Van Helmont in 1609 discovered an invisible substance, an emanation from coal, that he named "geist," meaning ghost, shortened in English to gas.

Only now do the miraculous possibilities of service to mankind from this Ghost begin to be glimpsed. Only now can modern industry, like a latter-day Aladdin rubbing his lamp to summon a vaporous genii, turn a valve and order this Ghost to any one of a hundred tasks. Only now are there practical, economical methods of producing, conveying, storing, controlling, harnessing it.

From the beginning, the problem was one of piping. When Crane Co. a half century ago set itself to develop and produce the right materials for every gas and oil purpose, they began an incalculably valuable contribution to the solution of problems that had held back the gas industry since the Chinese used hollow bamboo.

Natural and manufactured gas men, laying their lines and their plans to solve old problems, to open fresh markets, to take advantage of new possibilities, will find in the Crane line of valves, fittings, fabricated piping, and specialties exactly fitted to their needs, materials to equip gas well or manufacturing plant, booster station, pipe lines, even the gas cocks for a user's basement.

In the piping specialists stationed at strategic points throughout the country to serve the gas and oil industries, they will find informed and experienced advisors, glad to give all co-operation.



*In tanks like this, that are the bottles where the ghost of coal and natural gas is imprisoned for storage, Crane valves help to make control absolute.*

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**PIPING MATERIALS TO CONVEY AND CONTROL STEAM, LIQUIDS, OIL, GAS, CHEMICALS**

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# Natural Gas Industry Developments

## GATEWAY PRICE ISSUE IN OHIO GAS HEARING

COLUMBUS, Ohio, Dec. 6.—The Ohio Public Utilities Commission, in an order, held that when a natural gas distributing company seeks an increase in rates for gas received from a transporting company of which the distributor is a subsidiary, the burden is on the distributing utility to show that the contract price is just and reasonable to the company and to the consumer.

"Where a public utility distributing natural gas," the order said, "applies for an increase in rates and it appears that such utility has entered into a contract to pay a transportation company a gateway price of 45 cents per 1,000 feet, and it further appears that said contract was made under the supervision of a managing company and that all the common stock of the distributing company, the transportation company and the managing company is owned or controlled by the same holding company, the burden is upon the company asking for an increase in rates to show that the gateway price is just and reasonable to the distributing company and to the consumer."

The order was issued in connection with an application for an increase of rates by the Dayton Power & Light Co. for natural gas furnished in eight towns in the vicinity of Dayton. The company, according to the order, owns the gas distribution systems in the towns and supplies natural gas only. It does not own any transmission pipe lines, but buys gas at 45 cents per 1,000 feet at the several city gates from the Ohio Fuel Gas Co.

"All the stock of the Ohio Fuel Gas Co. and all the common stock of the Dayton Power & Light Co.," the order said, "is owned directly or indirectly by the Columbia Gas & Electric Corp. Each of said companies has a contract with the Columbia Engineering & Managing Corp. for certain operating purposes. The stock of the Columbia Engineering & Managing Corp. is also owned by the Columbia Gas & Electric Corp."

The eight towns contended that the contract should be disregarded because of the interrelation of the several companies, while the petitioning company claimed that the contract was prima facie evidence of the reasonableness of the rates. The company also asserted that it was incumbent upon the protestants to prove that the contract was not made in the exercise of the proper discretion of the company's officers.

It was contended by the company that most of the gateway prices in effect in Ohio are 45 cents ore more. The commission observed, however, that most of these prices are those charged by the Ohio Fuel Gas Co. or some related transportation company.

"If the commission may not investigate the contract entered into between a distributing company and a transportation company, through a managing corporation, whose common stock in turn is held by the same corporation that holds the common stock of the two contracting companies, the authority of the commission is circumscribed," the order said.

"The gateway price being the major portion of the total expenses of the distributing company, the commission's investigation as to the fair value of the property of the distributing company and the reasonableness of its other expenses is of but little consequence, if it must accept the gateway contract as final.

"The parties in this case are so situated that the evidence which would throw light upon the justness of the 45-cent gateway rate is within the control of the company and not easily available to the eight towns.

"We therefore conclude that, under the present condition of evidence, we should not go further into an expensive check of the company's valuation of the physical plant until we have determined whether the gateway rate is just. We do not hold the contract between the producing and the distributing companies void or a sham or fradulent, but we take the position that at this time it is incumbent upon the company to produce all available evidence within its control touching the fairness of the gateway rate.

"If the evidence so produced establishes the fairness of the gateway rate, we shall then go forward to determine the question of the value of the property under the evidence now before us.

"The order of the commission will, therefore, be that the company produce all the evidence available touching the cost of producing or acquiring or transmitting the gas to the several gateways and of the fairness of the gateway rate of 45 cents, and failing to do this within a reasonable time the application for the increase of rates will be denied."

## COMMISSION SEEKING CONTROL OF GAS LINES

KANSAS CITY, Mo., Dec. 6. — The Cities Service Gas Co. has been ordered by the Missouri Public Service Commission to file a schedule of industrial gas rates for all gas distributed by the company in Missouri by the company itself directly or through any agent.

Chairman Milton R. Stahl stated that the commission had been investigating the pipe line companies operating in Missouri for several months and that ample evidence has been discovered, in his opinion, to place the natural gas pipe lines under control of the commission as public utilities instead of considering them as interstate carriers.

The outcome of the test case will affect many other pipe line companies in Missouri and may be far reaching by giving the State control of natural gas rates and making the pipe lines public utilities under direct control of the commission, according to Mr. Stahl.

### SASKATCHEWAN GAS PROJECT

CHATHAM, Ontario, Dec. 6.—The Tri-Cities Utilities, Ltd., which was recently granted a tentative franchise to supply natural gas to Regina, Saskatchewan, is reported negotiating with the Saskatchewan cities of Moose Jaw and Saskatoon. The company proposes to take production from the Kinsella Field in east central Alberta, and to lay a pipe line from Kinsella to Regina, a distance of 357 miles, with a branch line of 32 miles to hook up with Moose Jaw. Initial expenditure is estimated at $14,000,000, and the ultimate outlay around $20,000,000. In addition to the transmission lines, complete distributing systems will be required in all the cities served. The Regina franchise is conditional on approval by the ratepayers of that city.

### GAS FOR MUNFORDVILLE

The Kentucky Natural Gas Co. has turned on natural gas in Munfordville, Hart County, Kentucky. Munfordville is the county seat and northwest from the Legrande oil field.

### MONTANA TAKES GAS

CHATHAM, Ontario, Dec. 6.—Montana-Dakota Power Co. is reported putting the finishing touches on its section of the 8-inch line connecting the Rogers-Imperial gasser in southern Alberta with its Great Falls line in northern Montana.

## COMMISSION MAKES TWO RATE RULINGS

SAN FRANCISCO, Calif., Dec. 6.—The State Railroad Commission has, in a divided opinion, ordered a reduction of 9 per cent in annual gross gas revenues of Los Angeles Gas & Electric Corp., which will amount to approximately $1,350,000.

While the 9 per cent reduction was ordered to go into effect January 1, 1931, the company was given the option of accepting temporary or trial rates for 1931, involving a 7 per cent reduction, with certain conditions stipulated for the establishment of a "temperature" reserve from earnings to guard against violent fluctuations in earnings due to warm or cold winters, with corresponding decreased or increased use of gas.

In case of an appeal the company will probably follow the lines of a dissenting opinion written by Commissioner Decoto, who asserts that the majority opinion fixes the return of the company at 6.8 per cent of the historical value of the property and at 6.3 per cent of the going value, which he claims is confiscatory, since it yields less than the cost of money to the company.

In another decision by the State Railroad Commission, the Coast Counties Gas & Electric Co. was advised that the commission will not fix gas rates in the future to produce a return on "present value basis" of properties no longer in service.

The decision establishes a precedent which the commission is expected to follow in fixing permanent rates for natural gas for companies which have abandoned artificial gas plants. The new policy will apply particularly to the Pacific Gas & Electric Co. when permanent rates for natural gas are fixed, replacing interim rates.

### CANADIAN GAS NEWS

CHATHAM, Ontario, Dec. 6. — The Dominion Natural Gas Co. has made application for a competitive franchise to supply gas to Hamilton, Ontario. The present Hamilton franchise is held by the United Gas & Fuel Co. of that city. The Dominion company has also made a proposition to the Kitchener, Ontario, Public Utilities Commission, to supply natural gas to the city at a rate of 50 cents per 1,000 feet, the municipality to handle the distribution.

The city of Medicine Hat, Alberta, is again considering a proposal to finance drilling of additional gas wells in the municipal field by issuing debentures for $100,000. The proposal is subject to approval of the Alberta Public Utilities Commission, which recommends that two wells be drilled, the sites and methods to be approved by the petroleum engineer of the department of the interior; and that a portion of the revenue from this production be set aside to finance further drilling.

The town council of Castor, Alberta, has extended to June 1, 1931, the time limit for Young Petroleums, Ltd., to commence drilling in the Castor Field. The original natural gas franchise granted Young Petroleums, Ltd., provided that drilling was to start by January, 1931.

### WILL NOT INTERFERE

CHATHAM, Ontario, Dec. 6.—In a recent interview at Calgary, W. A. Gordon, minister of immigration, intimated that the federal government would not interfere to prevent or even investigate export of natural gas from Alberta to Saskatchewan.

## CONTRACT FOR DELIVERY OF DRY GAS FROM ELWOOD

LOS ANGELES, Calif., Dec. 6.—During the first three years of the new 10-year contract recently signed by the Rio Grande Oil Co. and the Barnsdall Corp. with the Southern Counties Gas Co., calling for the delivery of Elwood dry natural gas, a minimum of $775,000 has been assured the two oil companies jointly, according to L. M. Lockhart, vice president of the Rio Grande company.

Mr. Lockhart estimated the maximum total that may be derived from the gas contract for the first three years at $1,175,000. The two oil companies share equally in the receipts.

The volume of gas to be delivered varies during the first three years from a minimum of approximately 2,590,000,000 feet the first year to 3,178,000,000 feet the second year and 3,626,000,000 feet the third year and throughout the remainder of the life of the 10-year contract.

At present the gas company is taking the entire gas output which is about 35,000,000 feet daily, Mr. Lockhart said.

### BOW ISLAND STORAGE

CHATHAM, Ontario, Dec. 6. — The Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary is making steady progress with the storage of surplus gas from the Turner Valley in the exhausted sands of the Bow Island Field. Between August 4 and October 31, some 350,000,000 feet of gas were stored; and the reserve has since been increased to upwards of 400,000,000 feet, worth at retail prices more than $125,000. Gas is being returned to the sands through four wells at a rate of about 5,000,000 feet a day, with steadily increasing pressure. No water trouble has been encountered. The gas waste from the Turner Valley approximates 300,000,000 feet a day.

### OKLAHOMA CITY FRANCHISE

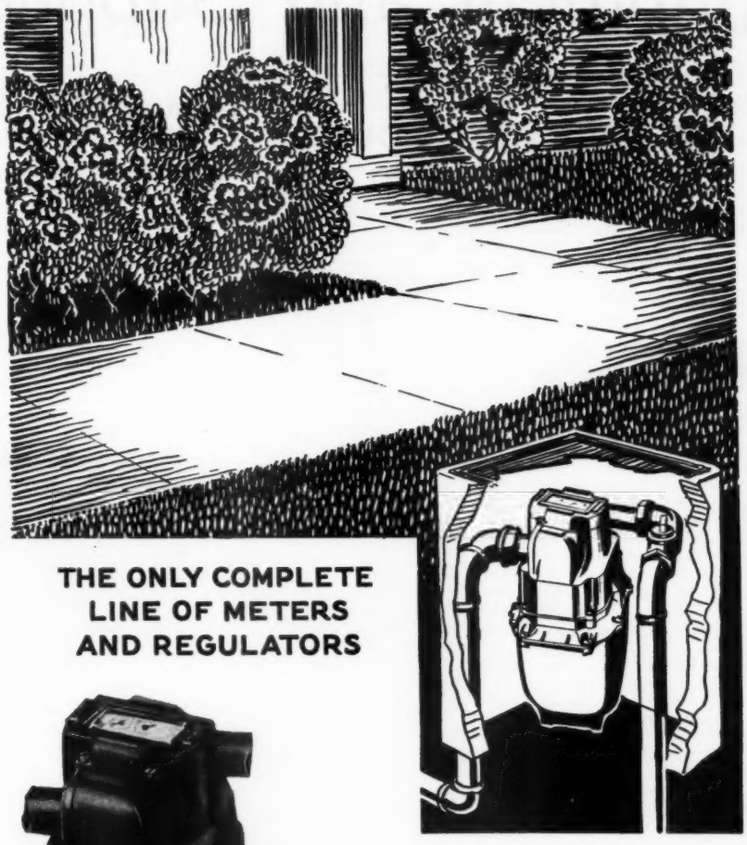
Consideration of Oklahoma City's gas rate problem will be resumed by the city council, due to failure of J. G. Pundt, Texas utility operator, to complete arrangements for financing his contract for a franchise. Whether to hold the franchise matter open longer while Pundt completes his arrangements, or to consider other offers, is the main question before the council. Indications are the council would declare the matter open for all bidders, thus giving Pundt or anyone else the opportunity to come in with an acceptable proposition.

### ST. THOMAS RETAINS PLANT

CHATHAM, Ontario, Dec. 6. — Ratepayers of St. Thomas, Ontario, have voted to continue municipal ownership and operation of the city's artificial gas plant. The vote on the sale of the plant was taken as an outcome of competitive purchase proposals from the Dominion Natural Gas Co. of Buffalo, and United Fuel Investments, Ltd., of Hamilton, the latter a subsidiary of Union Natural Gas Co. of Canada.

### TRINIDAD HELIUM

CHATHAM, Ontario, Dec. 6.—Interest is being taken in the possibility of developing substantial supplies of helium in Trinidad, British West Indies. During the war experts investigated the possibilities for the British Admiralty, and it is stated that experiments succeeded in recovering 2 per cent of helium from the Trinidad gas.



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Another member of the well known EMCO family—and basically the same in design and construction as the other EMCO Cast Iron Domestic Meters.

Made in the same sizes and capacities, contains the same valve plate, valves, and diaphragms. But in addition to all of this the Curb Box Meter is Cadmium plated, and is gas, air and water tight.

The dial glass is of moulded construction and gives a magnifying effect, thus accelerating meter reading.

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# EMCO METERS AND REGULATORS

## PITTSBURGH EQUITABLE METER COMPANY

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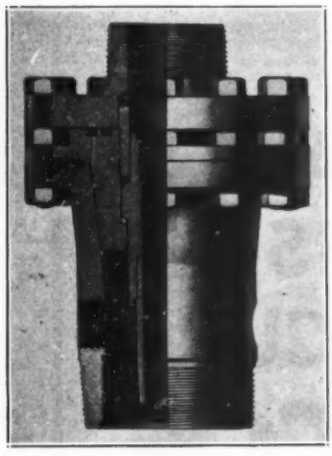
# Oil Field Equipment and Supplies

## NEW TYPE TUBING HEAD IS DESIGNED BY REGAN

For the purpose of obtaining the most efficient gas-oil ratio in a producing well by moving or adjusting the tubing, the Regan Forge & Engineering Co. has developed a tubing head embodying a new type of flange or flanges and a coupling, in combination with the present design of tubing head body. All the features of the company's tubing head equipment are



retained and in addition a construction is provided whereby tubing moving devices can be attached.

The operation is accomplished by hydraulically plugging the tubing with an automatic plug and removing the uppermost flange with the Christmas tree. The lower flange remains intact, and retains the seal, permitting installation of the Regan tubing gas controller and snubber. With the aid of the tubing gas controller, tubing can then be added or removed as conditions may require, after which the tubing is again landed, the Christmas tree attached, the automatic plug removed and the well again put on production, without any harmful effects to the oil sand.

Several types of these adjustable tubing heads are being manufactured, to meet the requirements of varying conditions. Fuller details may be obtained by addressing the manufacturers at San Pedro, Calif.

### LUFKIN COMPLETES ADDITIONS

Following completion of a two-story brick office building, steel and brick fireproof pattern shop and storage building and a wash and locker room for employes, the Lufkin Foundry & Machine Co. of Lufkin, Tex., has installed several modern production machines in the machine shop and foundry departments. Tools especially designed for the manufacture of Lufkin units have been added. The Lufkin Foundry & Machine Co. was organized in 1900. Lufkin, at that time, was centrally located in the thickly forested pine belt of East Texas. Some of the largest saw mills of the South and West were produced in the Lufkin plant. With the diminishing forests the plant's facilities were directed to the refinery end of the oil business and special refinery fittings were manufactured. Entry into the production end came with the introduction of the Lufkin worm-gear pumping unit. The Lufkin company recently introduced the Sykes-Herringbone gear. Other improvements for the production of oil introduced by the Lufkin company include the Trout oil-bath pitman, Trout counterbalanced crank and Lufkin centerline beam. W. C. Trout is vice president and general manager.

## AMONG THE EQUIPMENT HOUSES

Paul Reid, manufacturers' representative, Houston, Tex., has been appointed Gulf Coast district representative for the Rapid Fire Prevention Co., which recently was organized as the Rapid Construction Co. The company will place on the market a new system for the extinguishing of oil field fires.

E. B. Smith, field representative of the Bradford Motor Works, who has been covering the Wichita Falls, Tex., district, has been transferred to the Tulsa district.

L. P. Standifer, formerly with the Humble Oil & Refining Co., and an operator for many years on the Gulf Coast, in Mexico and in Trinidad, has been appointed field representative of the Houston Car & Machine Co. in connection with the distribution of the new blowout preventer which that company is placing on the market.

Three changes in personnel have been made at the Nuttall Works of the Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa. T. I. Phillips, formerly superintendent of metal stamping, has been appointed works manager. W. H. Himes, who was in the mechanical engineering department in East Pittsburgh, was promoted to manager of the engineering department. L. R. Botsai is made gearing apparatus manager. He was formerly industrial manager of the central district.

W. J. Frey of the Christie-Frey Co., Los Angeles, Calif., factory distributor in oil fields for the Raybestos Manufacturing Co., Bridgeport, Conn., and E. R. Ross, assistant chief engineer, have been on a tour of the Texas oil fields.

The welding and manufacturing business formerly conducted by the Pittsburgh Producers Supply Co. will be conducted hereafter by the Alloy Welding & Manufacturing Co., with general offices in Pittsburgh, Pa. The personnel and policies of the company will remain unchanged, it is announced.

The Birmingham Tank Co., Birmingham, Ala., has opened an office at 326 Court Arcade Building, Tulsa, with J. B. Gibson, district representative, in charge. The company makes steel tanks and does a general plate work.

The Mason Regulator Co., Boston, Mass., will exhibit reducing valves, pump governors, balanced valves, damper regulators and refinements in pressure regulation for power house work at the forthcoming National Power Show.

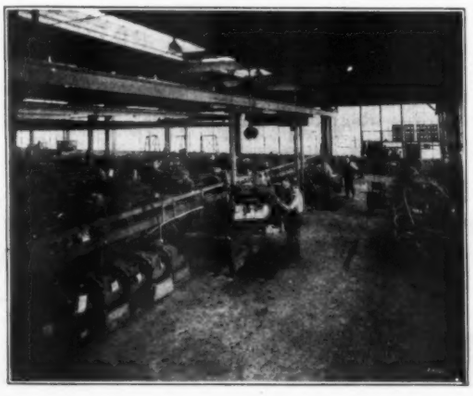
The Turbo-Mixer Corp., New York, has appointed the National Supply Corp. of that city to represent it in England, Rumania and the Argentine for all products of its manufacture for the petroleum industry. The Western Engineering Co., San Francisco, Calif., will represent Turbo-Mixer in California north of the Tehachapi Mountains.

An order for 7,500,000 pounds of rolled sheet copper has been placed by the Victor Manufacturing & Gasket Co., Chicago. This company's principal product, copper-asbestos gaskets, is used in the automotive field. John H. Victor, president, says, "Our belief that there will be an improvement in business is such that we feel warranted in making the purchase."

A. M. Cullum has resigned as oil country sales manager of the Reading Iron Co., with headquarters in Tulsa, to take a position with the Harbison & Walker Refractories Co., Pittsburgh, Pa.

## WAUKESHA INSTALLS ENGINE RECONDITIONING SERVICE

The Waukesha Motor Co., Waukesha, Wis., has organized a service for owners and manufacturers who use the company's product by equipping a section of its new plant with machinery for the reconditioning of engines that have been in use and require more than mere adjustment or ordinary repairs.



*Final inspection and test section of Waukesha's rebuilding division.*

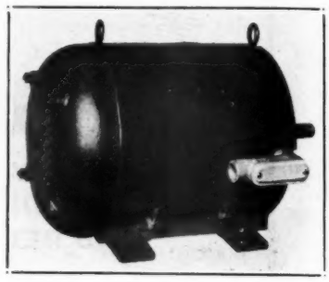
This department has new machine tools for rebuilding engines of any model or size regardless of their age, and to the original standards of precision and accuracy. Even a complete test and dynamometer run to check the performance after rebuilding is a part of the routine. It is said that this division has been able so to systematize production methods that engines which would appear hopeless can be made equal to new ones in a few days.

The first step in the routine that an engine follows in taking this rejuvenation treatment is a steam spray of washing compound which cleans the outside thoroughly and makes the preliminary inspection easy. If no damage appears in any of the parts, the engine is disassembled, the internal parts are cleaned and then the real inspection with close gauges and indicators shows just what must be done to restore the engine to new condition. New parts replace all worn or damaged pieces.

Then comes the final inspection with another set of gauges and indicators, a running test followed by another inspection of the bearings, pistons and cylinders and a final horsepower test on a laboratory type cradle dynamometer.

## UNUSUAL FEATURES MARK NEW "LINC-WELD" MOTOR

A totally enclosed, fan-cooled, induction motor which embodies unusual features has been announced by the Lincoln Electric Co., of Cleveland, Ohio, manufacturer of "Linc-Weld" motors and "Stable-Arc" welders. This motor is so ingeniously designed that its rise in temperature is considerably less than the allowable rise for motors of this type. The design includes arc-welded steel construction and double-sealed ball bearings. A removable cover facilitates easy cleaning of the large radiating surface, obtained by complete



enclosure of sides of the motor with a deeply corrugated sheet of corrosion resisting metal. This conducts the heat created within the motor to its outer radiating surface which is cooled by a continual draft of fresh air passing over it. The air imprisoned within the completely sealed frame is constantly circulated by a fan arc welded to the rotor. This fan drives the heated air within the motor to continuous contact with the large corrugated cooling surface. The outside air which drives the heat from the radiating surface is forced over the exterior of the corrugated surface by a large arc-welded fan attached to the motor shaft. The outside air is drawn in at one end of the motor and expelled at the other end.

The frame is fabricated of arc-welded steel to give it exceptional strength and rigidity. The stator laminations are stacked in the frame by hand, then subjected to extremely high pressure. While under pressure they are permanently affixed by a retainer ring which is arc-welded to the frame, making the stator core an integral part of the motor frame. The rotor core is formed by hot riveting the laminated iron while under high pressure. Twenty-eight gauge laminations are used both on the stator and rotor cores.

### INSULATED ALUMINUM WIRES

The General Cable Corp., New York, has announced a line of insulated aluminum wires and cables under the trade name "Alectral." Heretofore practically all of the aluminum used in the transmission of electrical energy has been in the form of bare conductors and within the past 10 years more than 250,000,000 pounds of aluminum has been employed in the production of overhead transmission lines. The introduction of Alectral wires and cables, representing as it does a new development in the field of insulated conductors, enables the electrical engineer to employ the economic features of aluminum in a broader field. The initial group of insulated aluminum conductors includes such constructions as network cable, nonmetallic underground cable, insulated line wire, tree wire, armored cables, magnet wire, starter cable and car wiring cable.

The Mission Sales Co., Houston, Tex., is mailing an 8-page bulletin describing and illustrating the Mission rotary slips.

# *Outstanding*

## IN DESIGN CONSTRUCTION PERFORMANCE

**The Model "M" Rock Bit embodies new features of design and construction which extend its usefulness far beyond that of ordinary bits intended for semi-hard and exceptionally hard formations.**

**1. Superior Construction.**
Consists of two major parts—the rock bit head and the three-point reamer. Extremely simple, and highly economical in service.

**2. Demountable Head.**
Only one complete bit and one extra head required. When a dull set of cones is pulled out, break off the head and replace with extra head containing a sharp set of cones.

**3. Positive Locking of Cones.**
The bushing is securely held to the cone by an alloy steel rod which forms an unbreakable yet flexible connection. There are no screwed-in washers or welded parts to come apart or break off.

**4. Easy to Change Cones.**
Simply remove two through-bolts, swing the hinged leg back, and replace worn cones with new ones. Entirely eliminates necessity of cutting off as is often the case with other types.

**5. Advanced Tooth Design.**
Teeth do not wear out by riding each other. All wear comes from contacting formations and maximum footage is obtained from every cone.

**6. Hard Faced Cones.**
Outside bevels of all safety cones are stellited, which keeps them to gauge much longer than is possible by heat treatment alone.

*For complete information regarding this super rock bit, write for Bulletin 12-A.*

## GLOBE OIL TOOLS CO.

**LOS NIETOS, CALIFORNIA**

*Successors to*
H. C. Smith Manufacturing Co., Inc.
Wieman-Kammerer-Wright Co., Inc.
National Tool & Metals, Inc.

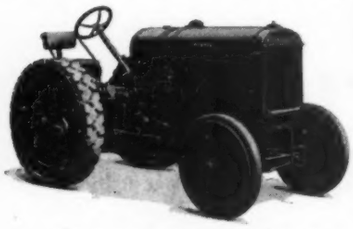
*Branches:*
Ventura, Calif.
Bakersfield, Calif.
Kettleman Hills, Calif.
Taft, Calif.
Hobbs, New Mexico
Oklahoma City, Okla.

# Oil Field Equipment and Supplies

## TRACTOR DESIGNED FOR HANDLING HEAVY LOADS

The McCormick-Deering industrial tractor, Model 30, is the latest addition to the McCormick-Deering industrial power family. It embodies the construction and performance features of the Model 20, the difference being in the increased capacity of the Model 30.

This new model meets the demand for a tractor capable of operating the new and larger equipment being introduced in



the oil industry and other fields. It is exceptional in its ready adaptation to mobile equipment. Loads and equipment are moved at speeds common to the smaller-sized tractors owing to the wide rubber-tired wheels. Forward speeds are 2.5, 4 and 6.7 miles per hour.

The Model 30 industrial tractor is powered by a four-cylinder valve in head engine. The cylinders have a bore of 4¾ inches and 6-inch stroke. Operating at the governed speed of 1,050 r.p.m., it develops over 40 horsepower on the belt.

The tractor can be equipped with a belt pulley, which attaches to the right hand side of the tractor. The belt pulley is 16¾ inches in diameter with a 9-inch face and travels at 593 r.p.m., providing a belt speed of 2,600 feet per minute. It can be replaced by a sprocket or a shaft power take-off. The speed, however, will be the same as the belt pulley, i.e., 593 r.p.m.

The power take-off shaft is available on special order for delivering power at the rear of the tractor. It is a 1½-inch shaft with a left hand thread and travels at 536 r.p.m.

## FLANGED JOINT IS MADE FOR WELDED PIPE LINES

A new type of flanged joint has been developed for use in connection with welded pipe lines where such a joint is required for the insertion of valves and fittings for the taking off of outlets. It is designated as the "Merco" swivel flange and according to the manufacturers has the inherent flexibility of the Vanstone type of flange, with the strength of a butt-welded flange.

The device consists of a drop-forged steel flange, fitted to a drop-forged tapered nipple on which the flange may be rotated, permitting alignment of bolts, etc. The tapered nipple is forged from a solid steel billet and the finished product incorporates a thickness much greater than pipe at the base of the nipple where highest stress occurs. Being formed completely at the proper forging temperature, possibility of a fracture of the metal is minimized.

The Merco Nordstrom Valve Co., San Francisco, Calif., is arranging for production of sizes from 1½-inch to 10-inch, and specifications are to meet the American standards in strength requirements.

"Oxwelding in Plant Maintenance," is the subject of an interesting article in the December number of Oxy-Acetylene Tips, published by the Linde Air Products Co., New York.

## NOTES ABOUT TRADE LITERATURE

"Ground Service to the Derby of the Air" is the subject of an article in the current issue of the International Trail, published by the International Harvester organization, in which the importance of trucks in refueling operations at airports is described.

The Brown Instrument Co., Philadelphia, Pa., has mailed approximately 50,000 novel cards illustrating the action of the Brown electric flowmeter, which operates on the inductance bridge principle.

The General Electric Co. has prepared new bulletins on fan-cooled induction motors, Resistor arc welders, automatic full-voltage controllers, magnetic switch, and hand-starting compensators.

The current number of the Gas Service Journal, published by the Pittsburgh Equitable Meter Co., Pittsburgh, Pa., contains among interesting articles "Another Slant on the Gas Industry," by Floyd Gibbons.

Catalog No. 2,002, featuring the Bristol motor-operated controller valves for gas, air, oil, steam and water, is being sent out by the Bristol Co., Waterbury, Conn. Of special interest is the valve type BK, for floating control.

The Byron Jackson Co., pump division, Berkeley, Calif., has printed a bulletin descriptive of its new auto laundry pump.

"A Trip Through the Ferro Pump" is the title of an ingenious folder published by the Ferro Machine & Foundry Co., Cleveland, Ohio, taking the reader on a 15-minute inspection tour of the Ferro pumping unit.

The Worthington Pump & Machinery Corp., Harrison, N. J., is mailing a bulletin on the Worthington multi-v-drive, joint product of that company and the Goodyear Tire & Rubber Co.

In an article, "More Power to the Oil Business," in the current number of Powertrax, published by the International Harvester organization, Chicago, Hal C. Wright tells briefly of the early days of the oil industry and then describes the revolution wrought by the tractor. Pictures taken in the field are shown.

The International Nickel Co., New York, announces that its monthly compilation of "Literature and Patent References to Nickel" is now available without cost to trade and technical publications.

## STEAM POWER IS UTILIZED TO SHIFT REVERSE LEVER

The Crausbay Supply Co. is about to place upon the market a steam power reverse gear, which utilizes the power of steam to perform the labor of shifting the reverse lever of an oil field drilling engine, instead of the hand power of the driller. This device, which may be bolted easily and quickly to the bed plate of any standard make of drilling engine, is controlled by the same combination throttle and reversing rod now in general use. In operation the length of the pull upon the hand wheel is reduced from approximately 24 inches to about 6 inches, and the amount of force necessary to approximately 5 pounds.

The Crausbay company says the device helps in performance of faster and more efficient work and in reduction of accidents. It enables the operator to remain in one position in close proximity to the controls of the engine instead of having to step backward and forward in reversing powerful engines under high steam pressure. Regardless of the force necessary to shift the reverse lever, the operator with this device can change the motion of the engine with one finger applied to the hand wheel, for he operates the valve of the reverse gear only. It is said that by use of this appliance it is impossible for an engine to change into reverse motion while running in forward position, as frequently happens when water accumulates in the steam chest. This device is equipped with a retarder cylinder which eases the stroke and eliminates jars and shocks on engine, chains and drawworks.

Illustrated bulletins describing this appliance are furnished by Crausbay Supply Co., Box 664, Houston, Tex.

## ROTARY-STEM VALVE IS INTRODUCED BY NEILAN

A new type of rotary-stem reducing or back-pressure regulator for high temperatures and pressures is now being made by Neilan Co., Ltd., to meet the demands of modern high-temperature cracking, refining and industrial processes utilizing both high and low pressures. The rotary

stem is designed to make it easier to keep tightly packed at high temperatures and pressures. Dangerous leakage is said to be impossible with this controller even at high temperatures and pressures.

Special types of stuffing boxes are furnished for different operating condition. The valve bodies are made of high-strength chrome-alloy cast steel. The valve plugs, valve-seat rings, complete rotary stem linkage and other parts are made of noncorrosive Nirosta KA2 stainless steel. Stainless steel ball bearings are used throughout. Descriptive literature may be obtained from the Neilan Co., Ltd., 641-651 Santa Fe Avenue, Los Angeles, Calif.

### TIRE CHAIN MADE OF RUBBER

Better roads and improved facilities for keeping roads clear during winter months have stimulated motor car traffic in the cold period. With increased winter driving, a heavy demand for rubber tire chains is reported by C. O. Buckmaster of the accessory sales department of the General Tire & Rubber Co. "We have just completed an unusual test of our Perfection rubber tire chains on a 1-ton truck, with 32x6 tires," Mr. Buckmaster said. "These chains were run for 1,070 miles on dry pavement without being removed from the wheels. Although the tread showed wear, most of the nonskid design on the cross links remained and the chains appeared to be good for at least another 1,000 miles before wearing down to the mesh reinforcement which forms the foundation." The Perfection chain is steel-wire reinforced. Mr. Buckmaster pointed out that it can be placed over the wheel at the beginning of the winter season and left on. When weather is good during winter, he said, these chains will carry the motorist quietly and smoothly even on bare concrete. Then, without having to reinstall them, they are ready to take the car through mud, slush, snow and ice.

The International Cement Co., New York, is sending out a 4-page folder entitled "Reducing Winter Construction Costs."

# are PRE-EMINENT Vapor-Recovery Field

There are more than twice as many CLARK engines in vapor recovery plants as any other make. . . . The largest vapor recovery plant in the world (recovering more than 250,000 gallons of gasoline per day) is equipped with CLARK Engines.

CLARK BROS. CO.
Olean, New York

Export Office: 150 Broadway, New York City. Mid-Continent Sales Offices: Tulsa and Fort Worth. Warehouses: Tulsa; McCamey and Sweetwater, Texas; Artesia, N. M. California: Smith, Booth, Usher Company, Los Angeles.

100 H. P. Clarks at Rising Star, Texas.

Look in the New Plants for CLARK "SUPER 2s"

CLARK

# Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

*This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.*

*Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.*

*Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.*

*All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.*

*Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.*

## MANUFACTURING PRODUCTS FROM OIL AND GAS

**I would appreciate any sources of data covering products which may be manufactured from petroleum and natural gas. For example, the products such as chemicals, acids, drugs, soap, alcohol. The methods for obtaining these products may be oxidation, pyrolysis, etc. I realize that this is a rather general and extensive request.—M. O. J.**

Numerous possible compounds may be manufactured from petroleum and natural gas, the latter offering very promising material because of the absence of complicating impurities that are found in many of the fractions from petroleum. Many of the same substances obtainable from oil may be manufactured from natural gas. Illustrating the possibilities, the Bureau of Mines has prepared a chart of the possible products from natural gas. Three general methods for converting natural gas hydrocarbons to commercial compounds are listed; these are: 1. Oxidation, either with steam, air, or oxygen. 2. Pyrolysis, changing of the molecular structure by heat treatment. 3. Chlorination, replacement of hydrogen by chlorine.

On the chart under oxidation there are: Water gas, methyl alcohol, acetone, formaldehyde, bakelite. Under pyrolysis: Acetylene, acetaldehyde, butadine, rubber, benzene, resorcinol, toluene, saccharin, xylene, carbon black, ink. Hydrogen, ammonia, ethylene, ethyl alcohol, ethylene chloride, ethylene glycol, propylene, propl alcohol, butylene, butyl alcohol, anthracene, alizarin, naphthalene, indigo. The examples of chlorinations are: Methyl chloride, methylene chloride, chloroform, carbon tetrachloride. While this is applied to methane, other hydrocarbons may be chlorinated.

These are simply indications and if an attempt were made to include all possibilities the entire field of organic chemistry would have to be discussed. A few illustrations from the Bureau of Mines' announcement will explain this.

When methane, from natural gas, is treated with steam at 1,652° F., water gas containing carbon monoxide and hydrogen is formed. This may be converted to methanol if heated between 392° and 752° F. at pressures from 50 to 200 atmospheres. Methanol may be converted to many compounds; direct oxidation, for example, yields formaldehyde.

Methane cracks between 1,800 and 2,200 degrees, then at somewhat lower temperatures the parts tend to unite to form new substances. The higher hydrocarbons behave in a similar manner. In these reactions hydrogen is always set free which may be separated and used in numerous ways; such as a reducing agent, hydrogenation of oils, synthetic preparation of ammonia. In a similar way it is explained that butadene may be prepared from the cracked gas and then converted to rubber.

The literature pertaining to possible petroleum products is extensive; Petroleum Technology, by Gurwitch-Moore, contains references to original material. Chemical Abstracts is very thorough. A few of the very recent papers may be mentioned:

Baldeschwiller and Cassar, Octane and Sultone, Chem. Soc. Jl., October, 1929, 2,969; Brooks, B. T., Alcohols from Hydrocarbons, Chem. Rev. 2, 369, 1926; Edible Fats from Crude Oil, Chemicals, October 28, 1929, 7; Chart of Products, Goodwin, R. T., Oil Paint and Drug Reporter, 11,105, 1927; Products from Natural Gas, H. J. Hunter, The Oil and Gas Journal, January 2, 1930; Food from Crude Oil, Inland Oil Index, November 1, 1929, 9; Products from Gaseous Hydrocarbons, W. T. Ziegenhain, The Oil and Gas Journal, May 9, 1929, 46; Petroleum as a Source of Synthetic Material, A. E. Dunstan, Petroleum Times, February 9, 1929, 232; Chemicals from Natural Gas, S. A. E. Journal, January, 1929, 72.

## ASHPHALT GRADING BY COLOR TEST

**We desire to get a method for classifying heavy asphalt fuel oils by the color of these oils in solution. These oils are almost solid, or soft asphalt. Gasoline does not give a good solution and we would appreciate any directions you can furnish for this purpose.—M. A.**

Gasoline is not a solvent for ordinary asphalt, a part being precipitated from solutions upon the addition of gasoline. Carbon bisulphide, benzol, and xylol are solvents but there are some objections to them. An article on the properties of asphalt preparations in the Oil and Colour Trades Journal, August 1, 1930, page 329, appears to answer your question as quoted:

"An important point to note in the selection of asphaltum is the great variation in opacity of equal strength solutions of different grades of asphaltum when compared at a sufficient dilution to be transparent. A simple test may be made as follows:

"Fuse together at 480° F. 10 grammes of the pitch to be tested and 40 grammes of rosin (this large excess is used to make certain that the whole of the pitch is kept in perfect solution). When the asphaltum or pitch is liquefied, the test is allowed to cool to 350° F., then cautiously thinned with turpentine to a bulk of 100 cc. The test is repeated with a standard sample of known properties; the two solutions thus obtained contain 10 per cent by volume of asphaltum or pitch, as the case may be. Ten cc. of each solution are thinned respectively with white spirit to a volume of 1,000 cc. These final solutions contain one part of the pitch per 1,000; they are compared side by side in standard matched tubes of equal diameter for depth of color. Often samples which are very similar in hardness, type of fracture, general appearance and price show amazing differences in the depth of solutions obtained at level strength. This tinctorial comparison is a reliable guide to the opacity and blackness of a pitch."

## ODORIZING GAS IN PRESSURE MAINS

**We are faced with the problem of odorizing gas in high pressure mains. This pressure runs up 250 or 400 pounds. Will you please advise us where we may procure data and pamphlets covering odorizing of gas in high pressure mains? Which numbers of The Oil and Gas Journal may have covered this particular point?—L. S. W.**

There are two reasons for adding any substances with a characteristic odor to gas. It may serve as a warning agent or for the detection of leaks. A warning agent is suggested for use with pure natural gas and the liquefied products, such as propane and butane, that are distributed in cylinders and bulk systems. The detection of leaks is of special interest when large volumes of gas are being handled.

Ethyl mercaptan (see reference list below) is an effective warning agent. It has an intense disagreeable odor detectable in dilutions of one part in a billion parts of air and will give warning to persons in concentrations of one part to 15,000,000 parts of air or 0.01 pound per 1,000,000 cubic feet of air. Ethyl mercaptan is an organic sulphur compound with the following properties: Boiling point 95° F.; melting point —186° F.; vapor pressure 291, 440 and 644 mm. mercury at 50°, 68° and 86° F., respectively; color, water white; specific gravity, liquid 0.840 or 37 A.P.I. While ethyl mercaptan is a sulphur compound the quantity required for odorizing gas would add organic sulphur in the proportion of 0.36 grain per 100 cubic feet of gas for each pound of ethyl mercaptan introduced per 1,000,000 cubic feet of gas, or well within the permitted limit of 20 grains per 100 feet of gas, as followed in manufactured gas practice.

Another substance, known as Cal-Odorant Oil No. 3, as developed in California, is described by Lee Holtz (see list). This will completely vaporize when introduced into gas at the rate of 3.5 gallons per 1,000,000 cubic feet at 55° F. and at a gauge pressure of 250 pounds. The properties of this liquid are: Gravity 40° A.P.I., or specific gravity 0.8251; weight per gallon 6.87 pounds per gallon; flash below 75° F.; total sulphur 4.5 per cent; acidity, none; distillation, I.B.P. 130° F., 10 per cent at 209°, 50 per cent at 306°, 90 per cent at 384°, maximum 439° F. The quantity required to odorize 1,000,000 cubic feet at various pressures is given in the table.

CAL-ODORANT FOR ODORIZING GAS

| Gauge pressure, pounds per square inch | Gallons per 1,000,000 cubic feet at 55° F. |
|---|---|
| 400 | 2.24 |
| 300 | 2.94 |
| 200 | 4.32 |
| 100 | 8.10 |
| 50 | 12.42 |

The general characteristics that a satisfactory odorant should have are listed: Harmless, neither toxic nor nauseating. Penetrating odor similar to that of artificial gas. Noncorrosive. Insoluble in water. Odor must be retained and not absorbed by mains or meters. Burn completely without harmful or odorous products of combustion. Must not set up chemical reactions. Must be cheap and readily available.

References on odorization of gas:

Acrolein as a Warning Agent, H. H. Schrenk and others, United States Bureau of Mines, Report Investigation 3,031, 1930; Correcting Nature's Oversight, American Gas Journal, April, 1930, page 74; Odorization of Natural Gas, Gas Age Record, April 12, 1930, page 508; The Odorization of Natural Gas, Lee Holtz, Gas Age Record, September 6, 1930, page 341; Efficient Warning Agent for Natural Gas, National Safety News, August, 1930, page 66; Natural Gas Companies Can Minimize Losses From Leaks by Using Ethyl Mercaptan as Warning Agent, The Oil and Gas Journal, April 10, 1930, page 49; Stenches for Detecting Leakage of Blue Water Gas and Natural Gas, S. H. Katz and V. C. Allison, United States Bureau of Mines Technical Paper 267, 1929; Use of Ethyl Mercaptan to Detect Leaks in Natural Gas Distribution Systems, R. R. Sayers and others, United States Bureau of Mines Report Investigation 3,007, 1930, Gas Age Record, July 26, 1930, page 118, American Gas Journal, August, 1930, page 50, The Oil and Gas Journal, July 31, 1930, page 100.

## CALCIUM CHLORIDE FOR DRYING GAS

**I noticed in The Oil and Gas Journal a year or two ago an article on calcium chloride dryers for the removal of water vapors from gas. Could you give me some information about this?—A. S. H.**

Calcium chloride is one of the best examples of a deliquescent salt. Such substances have the power to adsorb large quantities of water vapor from the atmosphere and if the process continues long enough the salt will fully dissolve in the water so removed. This solution then becomes a convenient medium for conveying water away from any drying system and is used in the article by F. M. Cole, Salt Creek Field Recovery Methods, in The Oil and Gas Journal, December 19, 1929, page 44, and especially as illustrated on page 148.

It is explained on page 148 that gas containing moisture gives trouble during cold weather because of water settling and freezing at a bend or low point, as little moisture as will make a quart of water in a week being sufficient to close a line in extremely cold weather. The freezing of condensate in lead and trunk lines has been greatly reduced by the use of calcium chloride. The salt is placed in an iron wire screen sack which is set in a pot. The liquid then drains from the pot to a dehydrator from which it may be drawn off.

The function of the calcium chloride is twofold. Its adsorptive properties tend to extract the water vapor from the gas and its antifreeze properties prevent freezing of the adsorbed or even condensed water.

Most satisfactory results are being had with alcohol in the gas supply line to the electric plant. The extra expense attending the use of alcohol is justified here because it is vital that the supply of fuel to the electric plant be continuous if the field is to be furnished light and power without interruption.

The delivered cost of calcium chloride is about $50 a ton. The price of alcohol is between 70 and 75 cents a gallon, or $29.40 to $31.50 per barrel.

## TESTING NATURAL GAS

**I wish to learn the methods of testing gas volume and making the calculations as to grade, residue content, pressure and value. Please inform me as to the text books and bulletins that may be secured on this subject.—E. T. W.**

Methods for measuring gas volume are described in Handbook of Natural Gas, by J. C. Diehl and the Recovery of Gasoline from Natural Gas, by G. A. Burrell. These books contain additional information that may be of help in obtaining the additional information desired.

There are numerous bulletins and technical papers published by the Bureau of Mines on the subjects indicated. A list of these may be obtained from the office of the Bureau of Mines, Washington, D. C., and the Superintendent of Documents, Government Printing Office, Washington, D. C.

# New Gas Showing in Edwards County

## Disappointment in Leck Area, Winkler County. Loving County Most Active in Permian Basin. Big Lake Tubing Successful

By L. E. Bredberg
*Fort Worth Bureau, The Oil and Gas Journal*

FORT WORTH, Tex., Dec. 8. — Edwards County got some attention this week when the Phillips Petroleum Co.'s No. 2 Holman, in the NE cor. SE. Section 25, C.C.S. D.&R.G.N.G. Survey, struck 500,000 feet of dry gas at 6,650 feet. Six and five-eighths-inch casing has been set at 6,640 feet, the well being shut down at the present time. This is another showing in the Edwards plateau region that cannot be passed up and forgot for all of the oil and gas showings heretofore encountered in the several wildcats drilled in this and the adjoining counties of Sutton and Schleicher and Kerr are considered as having great significance. Many leases have been purchased on the basis of the former showings and the region is sure to receive many tests when the industry is in better condition.

Cranfill Brothers and Gulf Production Co.'s No. 1 Tubbs, in the SE cor. NE, Section 8, Block B-27, western Crane County, is drilling past tools which were lost several weeks ago, and the discovery is making an estimated 1,750,000 feet of gas and about 20 bbls. of oil daily. This test attracted great attention when it encountered an oil horizon at 4,295 feet and flowed 117 bbls. in 13 minutes on October 13, but in deepening it failed to make the production promised by the initial flow, and the well and area lost much prestige. Losing the tools in the hole thereby causing a long and tedious fishing job has almost isolated the well from the minds of those operating in the Basin.

### Leck Area Disappointment

Turman and others' No. 1 Daugherty, in the SE of Section 16, Block 74, Public School Lands Survey, Winkler County, is another test which has helped bring disappointment to the Leck area. It was abandoned as dry at a total depth of 3,176 feet. This is the second late dry hole for this immediate area, one having been plugged about two weeks ago.

The California Co.'s No. 1 Abrams in the SE of Section 13, Block 54, Township 4s, T.&P. Survey, Reeves County, was abandoned as dry at a total depth of 4,250 feet in sand. It had a hole full of salt water with a showing of oil following a 150-quart shot from 4,202-40 feet and had a show of oil and water at 4,243-45 feet. Surface elevation of this test is 2,798 feet and the Delaware was topped at 4,207 feet. The California Co. evidently has hopes of finding production in this area for it has staked a location for its second test 990 feet from the south and 1,520 feet from the east of Section 11, Block 54, same township and survey.

Loving County is one of the most active in the basin and has been active for the past few months, several good high gravity sweet oil wells having been completed within that time. Eppenauer and others' No. 1 J. G. Allen, 2,310 feet from the northeast and northwest lines in Section 90, Block 1, W.&N.W. Survey, is one of the last wells to show for production, and is promising to be one of the best wells yet completed in the field, standing bottomed at 4,309 feet looking good for about 300 bbls. per day. Elevation of the test is 2,762 feet and the Delaware was topped at 4,285 feet. Phillips Petroleum Co.'s No. 1 Jim Wheat was completed for a good well in the pool for an initial production of 411 bbls. at 4,323 feet this week.

### Big Lake Field

Big Lake Oil Co.'s No. 4-C University the largest deep producer in the Big Lake Field, Reagan County, was tubed with 285 joints of 2 and 3-inch tubing, set at 8,670 feet, and the well fell off about half of its former production, which was better than 4,100 bbls. per day. Total depth of the hole is 8,697 feet. Tubing has proved successful in this deep well and achieved the purpose of curtailing oil and gas production.

Vacuum Oil Co.'s No. 3 McMillan in Subdivision 22, Domingo Diaz Survey, which was deepened 4 feet last week from 2,413 to 2,417 feet and increased greatly in production, has been swabbing intermittently during the week, making about 90 bbls. of oil per day and a considerable amount of water. The water is believed to be coming from behind the casing and if this is found to be the case it will be cemented off. Before deepening the well was pumping an average of only 10 bbls. per day and the owners had considered plugging it, but decided to deepen a few feet before giving it up. The well has been producing for over two years, and is the only one left to produce out of the three drilled in the immediate area.

### Yates Allowable

The cut in the daily allowable production from 100,000 to 89,500 bbls. daily recommended by the Yates Pool advisory committee at Dallas, December 2, has been authorized by the Railroad Commission and a temporary order has been issued reducing the amount of production effective December 5, continuing in effect until January 25, 1931. This order is based on the request of a majority of producers to correlate with nominations by the purchasers in the field. The potential of the pool, based on 12 hours, is now 2,755,885 bbls. per day from 400 wells on 194 units.

There are 591 wells producing in Crane and Upton Counties having a daily potential of 47,767 bbls. with a total allowance of 29,000 bbls. per day, but operators in these pools will hold a general meeting December 10 at the Texas Hotel, Fort Worth, to discuss changes in present rules governing these fields and also the reduction of outlet in the pools.

November production of Winkler County was 1,697,695 bbls., compared with 1,871,923 bbls. during October or a decline of 174,228 bbls. Total gross production from the county from date of discovery to December 1 was 134,207,820 bbls. Daily allowable of the pool is 60,000 bbls. and the daily average production during the week ending November 26 was 54,877 bbls.

Only one well is drilling in the Penn Pool, Ector County, showing that comparatively new pool has also assumed its place in curtailment plans of West Texas.

### COMPLETIONS IN WEST TEXAS

#### Andrews County

Fuhrman Oil Corp.'s No. 1 Ford, total depth 4,613 feet, plugged back to 4,564 feet, swabbed dry and shot with 150 quarts 4,384-4,534 fet, flowed 232 bbls. in 24 hours, top pay 4,290 feet, increase 4,372 feet, initial production 235 bbls. flowing.

#### Ector County

C. P. Davis and others' No. 1 T. G. Hendrick, dry and abandoned, total depth 4,850 feet.

#### Scurry County

Northwest Oil Co.'s No. 1 Welborn, completed July 16, 1924, total depth 3,490 feet, topped pay 3,390 feet, plugged back to 3,434 feet, shot 60 quarts 3,380-3,420 feet, now plugged back to air, not producing, using air to pump other wells. Northwest Oil Co.'s No. 1 Welborn "A," completed September 11, 1926, total depth 3,435 feet, topped pay 3,392 feet, now plugged back to air, using air to pump other wells.

#### Reeves County

The California Oil Co.'s No. 1 Kloh and Rumsey, dry and abandoned, total depth 4,378 feet.

#### Pecos County

Cosby Production & Royalty Co.'s No. 4 M. A. Smith, top pay 1,590 feet, shot 150 quarts 1,572-1,675 feet, initial production 80 bbls. per hour, total depth 1,712 feet. Humble Oil & Refining Co.'s No. 1 C. L. Thomson, dry and abandoned, total depth 3,375 feet.

#### Upton County

C. C. Duffey and others' No. 2 H. L. McClintic, top pay 2,870 feet, shot 320 quarts 2,860-2,985 feet, initial production 340 bbls., total depth 2,985 feet.

#### Winkler County

L. C. Turman and others' No. 1 Lum Daugherty, dry and abandoned, total depth 3,176 feet.

#### Crane County

Gulf Production Co.'s No. 4-B McElroy, top pay 2,948 feet, total depth 3,255 feet, plugged back to 3,229 feet, shot 350 quarts from 2,942-3,122 feet, initial production 30 bbls., swabbing.

### WEST TEXAS PRODUCTION
**Week Ending December 6**

| County— | No. wells | Bbls. |
|---|---|---|
| Andrews | 3 | 246 |
| Crane | 370 | 28,164 |
| Crockett | 49 | 1,660 |
| Ector | 75 | 7,608 |
| Fisher | 8 | 1,701 |
| Garza | 0 | 35 |
| Howard-Glasscock | 531 | 22,424 |
| Irion | 7 | 81 |
| Jones | 73 | 1,399 |
| Loving | 32 | 2,766 |
| Mitchell | 148 | 2,119 |
| Pecos | 521 | 107,330 |
| Reagan | 253 | 25,305 |
| Runnels | 3 | 12 |
| Scurry | 5 | 6 |
| Taylor | 3 | 125 |
| Upton | 253 | 7,300 |
| Ward | 46 | 3,355 |
| Winkler | 593 | 55,130 |
| Total production this week | | 266,766 |
| Total production last week | | 268,022 |
| Decrease | | 1,256 |

### RUNS THROUGH TRUNK LINES

| Company, size, location— | Bbls. |
|---|---|
| Atlantic, 10-inch, Houston | 24,061 |
| Gulf, 10-inch, Ranger | 29,366 |
| Humble, 2-8-inch, Comyn | 40,449 |
| Humble, 10-12-inch, Ingleside | 44,513 |
| Illinois, 2-8-inch, Del Rio | 36,393 |
| Magnolia, 8-inch, De Leon | 21,644 |
| Pasotex, 8-inch, El Paso | 9,738 |
| Shell, 10-inch, Healdton | 28,537 |
| Texas, 10-12-inch, Houston | 20,770 |
| Shell, 10-inch, Houston | 29,016 |
| Total | 284,487 |

### RUNS TO WEST TEXAS REFINERIES

| | |
|---|---|
| Big Spring Ref. Co., Big Spring | 602 |
| Burford Ref. Co., Pecos | 3,302 |
| Bluebonnet Ref. Co., Wickett | 0 |
| Cosden Ref. Co., Big Spring | 7,317 |
| Col-Tex Ref. Co., Colorado | 7,000 |
| Great Western Ref. Co., Big Spring | 2,719 |
| Humble Oil & Ref. Co., McCamey | 7,537 |
| Tonkawa Ref. Co., Pyote | 0 |
| Wickett Ref. Co., Wickett | 170 |
| Total | 28,647 |

### TANK CAR SHIPMENTS

| | |
|---|---|
| Fox & Thorsen, from Mertzon | 50 |
| Reagan County Pur. Co., from Texon | 0 |
| Texas Pacific Coal & Oil Co., from Hurdle | 1,518 |
| Orient, from Hurdle | 55 |
| Southern Crude Oil Pur. Co., from Wickett | 16,126 |
| Total | 17,749 |
| Total daily average distribution | 330,883 |
| Total daily average production (does not include Lea County, New Mexico) | 266,813 |

## WILDCAT OPERATIONS IN WEST TEXAS

**Week Ended December 8**

| Company, well, farm name, section and block— | Remarks— |
|---|---|
| **ANDREWS COUNTY** | |
| Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor. Sec. 24, School Blk. A-46 | Running 12½-in. casing 665 ft. |
| Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46 | Top pay 4,335 ft.; flows every 4 days; temporarily abandoned; total depth 4,454 ft. |
| **BREWSTER COUNTY** | |
| Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur. | Shut down 1,935 ft. |
| E. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur. | Shut down 1,302 ft. |
| Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur. | Shut down 2,510 ft. |
| Van McDonald's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 miles S of Alpine | Shut down 1,750 ft. |
| **CONCHO COUNTY** | |
| Beesley et al's No. 1 S. Waring Est., 1,320 ft. from S and E of A. T. Robinson Sur., Abst. 2,120 ft. | Spudded and shut down. |
| Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock | Shut down 1,520 ft. |
| **CRANE COUNTY** | |
| Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land | Drlg. by tools; making estimated 7,000,000 ft. gas and spraying 25 bbls. oil per day; total depth 4,488 ft. |
| Cranfill Bros.' No. 1 Muir, 330 ft. from N and 2,310 ft. from W, Sec. 23, Blk. B-27, Public School Land | Set 6⅝-in. casing 3,795 ft. |
| **CROCKETT COUNTY** | |
| Dieringer et al's No. 1 Banscorew estate, 330 ft. from N and 2,310 ft. from W of Sec. 27, Blk. HH. G.C.&S.F. Sur. | Drlg. 660 ft. |
| Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur. | Spudded and shut down. |
| Magnolia Pet. Co.'s No. 2 Hoover, 2,310 ft. from S and 335 ft. from E of Sec. 2, Blk. FF, B.&B. Sur. | Swabbing and bailing 6 bbls. oil per day; total depth 2,056 ft.; shut down for storage. |
| Taylor-Link Oil Co.'s No. 1 Mary Bullock et al, 330 ft. from N and E of Sec. 41, T.C. Sur. | Run 8¼-in. casing 1,350 ft. |
| **CULBERSON COUNTY** | |
| Cranfill Bros. and Sholts' No. 1 Seay, 2,310 ft. from S and W, Sec. 45, Blk. 60, Public School Land | Rig up national machine. |
| Grisham & Hunter's No. 2 Garren, 2,475 ft. from S and 1,566 ft. from E, Sec. 20, Blk. 89, Public School Land | Shut down 1,520 ft.; show oil 1,400-15 ft. |
| Kornrumpf et al's No. 1 Garren, 330 ft. S and W. Sec. 15, Blk. 79, Public School Land | Drlg. 1,160 ft. |
| **DAWSON COUNTY** | |
| Albaugh et al's No. 1 Robinson, C NW, Sec. 46, Blk. M. E.L.&R.R. Sur. | Standard rig and tools. |

(Continued on Page 138)

# Trying to Solve Panhandle Problems

## Efforts to Provide Connections for Wells Dropped by Purchasers. New Wildcat Pool in Young County Probable

By L. E. Bredberg
*Fort Worth Bureau, The Oil and Gas Journal*

FORT WORTH, Tex., Dec. 8.—The tragic situation of the Panhandle district was brought to the attention of many officials of various companies this week when Chief Supervisor R. D. Parker of the Texas Railroad Commission wired directors of the Mid-Continent Oil and Gas Association at its annual meeting held at the Adolphus Hotel, Dallas, on December 5, asking that body if it could not do something to alleviate the bad conditions in the Panhandle which received another blow during the week when the Prairie Oil & Gas Co. announced it would severe all connections in the district on January 1 in line with its general cessation of purchasing crude oil in the Mid-Continent and Texas.

Immediately after the general meeting of the Mid-Continent directors adjourned David Donoghue, technical advisor of the central proration committee of Texas, presided over a group of producers and purchasers of the district and it was decided to hold another meeting at the Texas Hotel, Fort Worth, December 11, to endeavor to bring succor to producers in the area. W. G. Skelly, president of the Skelly Oil Co., which has production in the Panhandle, stated he would come down from Tulsa for this meeting and bring several other company officials in an effort to right conditions as far as possible.

Total potential production of the Panhandle district for the period from December 1 to 16, was 122,841 bbls. of which 23,346 bbls. is exempt oil, leaving proratable production at 99,495 bbls. while the outlet was for only 64,616 bbls. There are 1,983 wells in the district and about 415 wells on 208 producing properties have no pipe line connections.

### Arranging Connections

The Wichita Falls and Ranger districts were two more districts greatly affected by the cut in purchases by the Prairie Oil & Gas Co. and producers and purchasers of both districts met in Fort Worth during the week to try to arrange connections for leases which are most affected by the disconnection.

The statewide proration order places the daily allowable of the Ranger or West Central Texas at 29,476 bbls., but the Prairie move will cut it 5,280 bbls. less. Potential production of the district is 45,002 bbls. of which 18,976 bbls. is free oil. However, the Stanolind Crude Oil Purchasing Co. volunteered to take Prairie's connections in the Kisinger Pool of southern Young County, and other allocation of pipe line connections may shrink the margin appreciably, but it is not to be hoped that all disconnected leases will receive help immediately.

Crude purchasers met at Ranger December 8 to try to make adjustments and take over connections dropped by the Prairie but little was accomplished. Illinois Pipe Line Co. may connect with some leases and give a little relief. Prairie had cut its runs to 1 bbl. per well effective December 1, and when all runs are stopped January 1 some of the leases in areas in which Prairie alone has pipe lines will suffer for other pipe line companies cannot afford to lay extensive lines to distant leases to take a mere pittance of oil from the prorated wells.

The margin limit of wells in the Ranger district has been 6 bbls. for wells less than 2,000 feet deep; 12 bbls. for wells from 2,000 to 3,000 feet; and 20 bbls. for wells below 3,300 feet. A representative of The Texas Company advised cutting the marginal limit to 4 bbls. as in the Wichita Falls district, but this advice was not accepted at this meeting.

John M. Gholson, district chairman, presided at the meeting in Fort Worth on December 3.

### Wichita Falls Meeting

A meeting of the Wichita Falls operators at Fort Worth on December 4, presided over by Barney Flynn, discussed the caring for approximately 2,650 bbls. of oil for which there is no market. The meeting was confined to a discussion of trading and exchanging pipe line connections by purchasers in order to place every lease on a ratable and equitable basis. If this could be done it was generally believed bootleg oil would be eliminated and the market stabilized to a great extent. The purchasing companies are still working on the problem of adjusting runs, but have not yet succeeded. A number of producers have indicated willingness to bear the 7½-cent gathering charge and it is probable all of them will eventually fall in line with this plan, but it will be some time before all have voiced their opinion as to this charge.

The Stanolind Crude Oil Purchasing Co. indicated it would connect to 806 bbls. let go by the Waggoner Refining Co. and 1,000 bbls. let go by the Continental Oil Co. in the district if there was no gathering charge connected to taking this oil, and said it was willing to stretch a point in order to help out a serious situation, but did not want to carry a burden in the district. Prairie Oil & Gas Co. seemed agreeable to loaning its lines or gathering systems to help matters in the district from which it was withdrawing as a purchaser on January 1, 1931.

Daily runs to refineries in the Wichita Falls district from November 25 to December 2, were 25,390 bbls., out of which 11,852 bbls. went at posted prices and the remainder sold below market price.

### May Open New Pool

While the Wichita Falls operators were busy discussing alleviating pipe line troubles in the district the Panhandle Refining Co.'s No. 1 Cox in the northwest quarter of the M. Cox farm in the Indianola Railroad Survey Abstract No. 156, 7 miles north and a little west of the Kissinger Pool, and about 3 miles southeast of Graham in Young County, was showing up as a discovery well in sand topped from 2,329-34 feet. The well tested 10,900,000 feet of gas and an estimated 10 bbls. of oil spray with 900 pounds rock pressure and looks sure to open a new pool in absolute wildcat territory.

The Overall Pool in Coleman County produced 360 bbls. per day during the past week, and total production for November was 11,738 bbls. Total recovery from date of discovery is 633,503 bbls.

The Burkett Pool, Coleman County, was given a half-mile extension to the northwest by Eastland Oil Co.'s No. 1 Cannon in the E. M. Justis Survey, finding the sand with oil and gas from 1,604-15 feet. There is 1,200 feet of oil in the hole and a little water which the owners believe to be coming from behind the pipe. The well is down dip from production and it would not be surprising to find that the water is coming from the bottom of the hole. It is 11 feet in the sand and the well has been estimated good from 20 to 50 bbls.

### COMPLETIONS IN PANHANDLE DISTRICT

#### Carson County

North American Oil & Gas Co.'s No. 1 F. W. McEwen, initial production 32,000,000 feet of gas from 2,470-2,603 feet, total depth 2,616 feet. Texas Interstate Pipe Line Co.'s No. 1 S. E. Burnett (Section 84), initial production 43,000,000 feet of gas from 2,110-2,340 feet, total depth 2,350 feet.

#### Gray County

Dulaney and Ward's No. 1 Morse, dry and abandoned, total depth 2,892 feet. Cockrell and McIlroy Oil Co.'s No. 1 Harbaugh, top pay 3,284-3,306 feet, initial production 108 bbls., and one-half bailer of water, total depth 3,306 feet. North American Oil & Gas Co.'s No. 1 Duncan, top pay 2,597-2,712 feet, initial production 34,000,000 feet of gas, total depth 2,727 feet. Operators Royalty & Production Co.'s No. 5 Harrah, top pay 3,131-3,216 feet, shot 85 quarts 3,131-3,216 feet, initial production 500 bbls., total depth 3,225 feet. Shamrock Oil & Gas Co.'s No. 2 Reynolds, abandoned location.

#### Hutchinson County

Huber Petroleum Co.'s No. 1 Johnson Brothers, initial production 28,000,000 feet of gas from 2,500-15 feet, total depth 2,550 feet. Prairie Oil & Gas Co.'s No. 1 N. H. Read, total depth 3,223 feet, plugged back to 2,950 feet, initial production 14,000,000 feet of gas from 2,592-2,613 feet.

#### Moore County

Shamrock Oil & Gas Co.'s No. 1 W. Coffee, shot 150 quarts 3,495-3,545 feet, initial production 150 bbls., total depth 3,566 feet.

#### Randall County

Patterson and others' No. 1 Campbell and McIlroy, temporarily abandoned, total depth 1,250 feet.

#### Wheeler County

Mid-Kansas Oil & Gas Co.'s No. 1 Harvey, top pay 1,440-1,655 feet, initial production 84,500,000 feet of gas, total depth 1,660 feet.

### NORTH TEXAS PRODUCTION

**Week End'ng December 6**

| Panhandle District— | Bbls. |
|---|---|
| Carson County | 6,355 |
| Hutchinson County | 17,190 |
| Gray County | 52,250 |
| Moore County | 320 |
| Potter County | .... |
| Wheeler County | 620 |
| Total production this week | 76,735 |
| Total production last week | 73,080 |
| Increase | 3,655 |
| Wichita Falls District— | |
| Archer County | 13,260 |
| Baylor County | 1,010 |
| Clay County | 650 |
| Cooke County | 2,890 |
| Foard County | 130 |
| Jack County | 1,601 |
| Haskell County | 31 |
| Montague County | 6,135 |
| Throckmorton County | 795 |
| Wilbarger County | 16,675 |
| Wichita County | 21,835 |
| Young County | 12,980 |
| Total production this week | 77,992 |
| Total production last week | 77,943 |
| Increase | 49 |
| Ranger District— | |
| Brown County | 5,118 |
| Callahan County | 3,005 |
| Coleman County | 2,850 |
| Comanche County | 1,049 |
| Palo Pinto County | 441 |
| Eastland County | 3,985 |
| Shackelford County | 5,180 |
| Stephens County | 5,290 |
| Total production this week | 26,918 |
| Total production last week | 27,127 |
| Decrease | 209 |

### COMPLETIONS IN RANGER DISTRICT

#### Brown County

McCarter and others' No. 1 Harris, dry and abandoned, total depth 1,342 feet. McLean and others' No. 1 Byler, dry and abandoned, total depth 1,545 feet. Stratton and Gulley's No. 1 King, dry and abandoned, total depth 1,501 feet. Young Brothers and Alexander's No. 3 Kilgore, oil sand 1,203-1,219 feet, shot 120 quarts 1,203-19 feet, initial production 304 bbls., total depth 1,220 feet. Leiner and Walker's No. 2 Ruthford, initial production 2,250,000 feet of gas, total depth 810 feet.

#### Callahan County

Production Purchasing Co. and Campbell Oil Corp.'s No. 2 Horn, dry and abandoned, total depth 1,346 feet.

#### Coleman County

Atlantic Oil Producing Co. and others'

(Continued on Page 138)

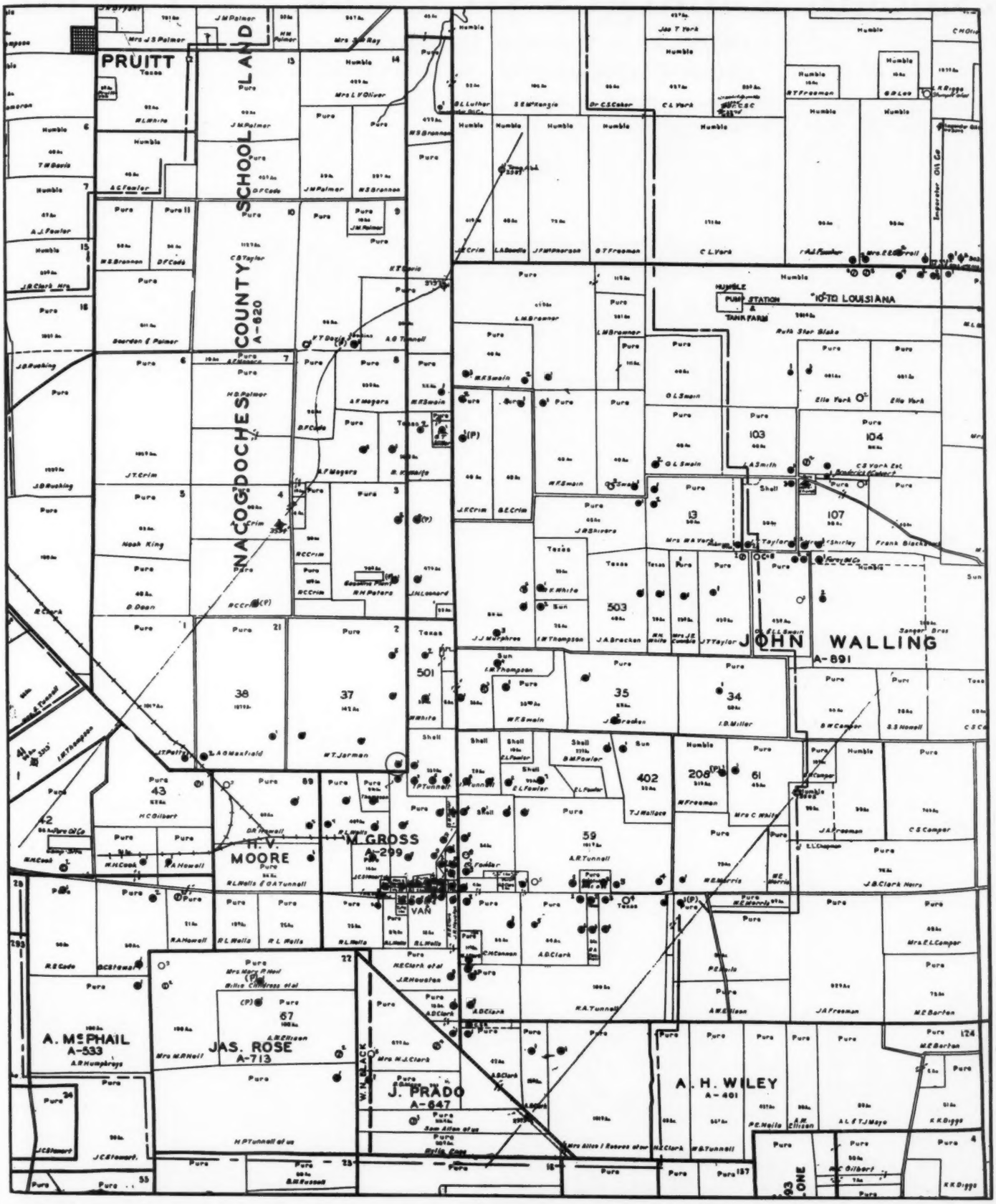
## WILDCAT OPERATIONS IN TEXAS PANHANDLE

**Week Ending December 8**

| Company, well, farm, name, section and block— | Remarks— |
|---|---|
| **CARSON COUNTY** | |
| Empire G. & F. Co.'s No. 1 Jordan et al, C SE, Sec. 94, Blk. 4, I.&G.N. Sur. | Fishing 1,900 ft. |
| Gibson Oil Corp.'s No. 1 Foster & Co., C NW, Sec. 24, Blk. 7, I.&G.N. Sur. | Drlg. 2,660 ft. |
| Krebs & Barnard's No. 1 Barnard, 660 ft. S and W, NW, Sec. 24, Blk. 4, I.&G.N. Sur. | Drlg. 2,080 ft. |
| Lone Star Gas Co.'s No. 1 McConnell, C SE SW, Sec. 65, Blk. 4, I.&G.N. Sur. | Drlg. 1,290 ft. |
| Magnolia Pet. Co.'s No. 1 Burnett, 330 ft. N and W, W½ NW, Sec. 101, Blk. 4, I.&G.N. Sur. | Drlg. 2,255 ft. |
| North American O. & G. Co.'s No. 1 Polling, 1,320 ft. N, 1,500 ft. E, Sec. 24, Blk. Y-2, T.T.R.R. Sur. | Spudded and S.D. |
| Plains Holding Co.'s No. 2 McConnell, C S½ NE, Sec. 46, Blk. 4, I.&G.N. Sur. | Drlg. 2,580 ft; 50,000,000 ft. gas. |
| Plains Holding Co.'s No. 3 McConnell, N½ NW, Sec. 46, Blk. 4, I.&G.N. Sur. | Drlg. 1,295 ft. |
| Ryan Cons. Oil Co.'s No. 1 Jordan-Brown, C N½ E½ NE, Sec. 83, Blk. 4, I.&G.N. Sur. | Spudded. |
| **CHILDRESS COUNTY** | |
| C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands | T.D. 5,000 ft. |
| **COLLINGSWORTH COUNTY** | |
| Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. | S.D. 510 ft. |
| **GRAY COUNTY** | |
| Adams, Prince et al's No. 1 Morse, 330 ft. NE SE, Sec. 6, Blk. 26, H.&G.N. Sur. | Drlg. 1,000 ft. |
| British-American Oil Co. and Shell Pet. Corp.'s No. 1 Smith, 330 ft. S and E, NW, Sec. 138, Blk. 3, I.&G.N. Sur. | Location. |
| Beck's No. 1 Sullivan, 330 ft. N and E, W½ NW, Sec. 135, Blk. 3, I.&G.N. Sur. | Drlg. 2,650 ft; estimated 30,000,000 ft. gas 2,520-2,650 ft. |
| Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. | Spudded and S.D. |
| Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. | S.D. 740 ft. |
| Cree & Hoover's No. 1 Call, 330 ft. N and W, SW, Sec. 105, Blk. 3, I.&G.N. Sur. | Drlg. 1,145 ft. |
| Empire G. & F. Co.'s No. 1 McCullough, 1,320 ft. S, 886 ft. W, Sec. 153, Blk. 3, I.&G.N. Sur. | Fishing 2,075 ft. |
| Danciger O. & R. Co.'s No. 1 Sullivan, 231 ft. N, 224 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. | S.D. 2,240 ft. |
| Danciger O. & R. Co.'s No. 1 Barrett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, I.&G.N. Sur. | Rotary rig. |

(Continued on Page 140)

# MAP OF THE VAN POOL, VAN ZANDT COUNTY, EAST CENTRAL TEXAS




*New locations, drilling wells, producing wells and dry holes drilled to December 1, 1930; the Pure Oil Co.'s gasoline plant, Humble Oil & Refining Co.'s camp, tank farm and pumping station site and Pure Oil Co.'s camp site are all shown on the map. The two lines drawn on either side of the pool from the southwest to the northeast define the present limits of the pool according to dry holes drilled. One 8-bbl. well on the northwest edge of the pool shown in the southeast corner of the V. T. Davis 66-acre farm causes a bulge in the line depicting the western limits of the pool. This well is a pumper. The Texas Company's No. 2 Carter, shown in the northeast corner of the map, and Imperator Oil Co.'s No. 1 Carter, in that area, are two dry holes marking the limits of production in that direction. The railroad shown on the left of the pool is a short line built from Grand Saline by the Texas & Pacific Railroad. It entered the pool after production was found, and was formally opened for traffic on July 4, 1930. The town of Van, from which the pool takes its name, is located in the M. Gross Survey where the wells are closely spotted due to town lot drilling. The discovery well is indicated by the circle. The heavy broken line around the field encloses the 5,800 acres within the Van Joint Account which is operated by the Pure Oil Co. for the Shell Petroleum Corp., Sun Oil Co., Humble Oil & Refining Co., The Texas Company and itself under a unit plan which was worked out for the field shortly after its discovery.*

# Sinclair Enlarges Wellsville, N. Y., Plant

## All Phases of Operation Modernized With Large Output of Lubricating Oil. To Install Cracking Units

By A. E. Mockler
*New York Bureau, The Oil and Gas Journal*

WELLSVILLE, N. Y., Dec. 6.—Sinclair Refining Co., refining subsidiary of Sinclair Consolidated Oil Corp. is bringing to a close an extensive modernization and expansion program at its refinery here which has given Sinclair the world's largest and most modern refining plant handling Pennsylvania Grade crude, with capacity for throughput of 10,000 bbls. of crude per day and production of a high grade lub oil, in addition to a number of other refined products.

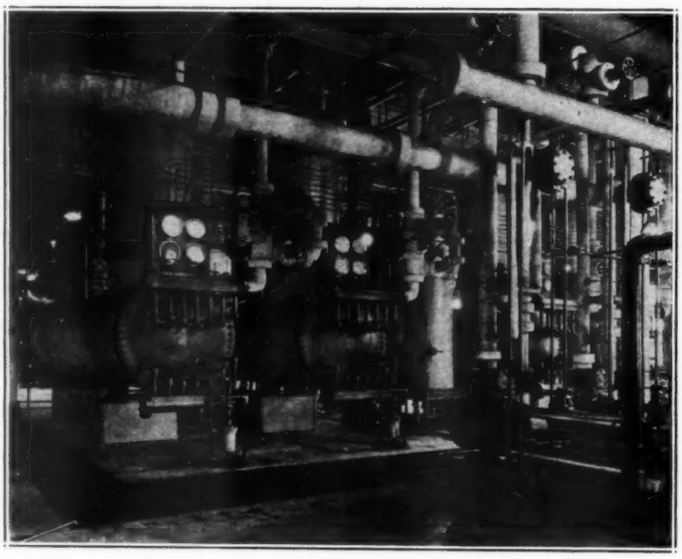
The remodeled refinery, which is practically completed with most of the new equipment in operation, is concentrating principally upon the production of "Mobiline," Sinclair's new low temperature pour test lub oil. With completion of the expansion program at Wellsville the Sinclair plant here will be able to produce 80,000 gallons of lub oil daily, or 10 times the capacity of the former plant. While the principal product of the enlarged refinery is "Mobiline," the plant also turns out gasoline, kerosene, cleaners' and painters' naphtha, 300 oil, furnace oil, cylinder stock for railroad and industrial use, and other minor products.

### Lubricating Plant

The outstanding feature of the Wellsville plant is the new 7,500-bbl. Foster Wheeler crude still, which was placed in operation a few months ago. This still, with a 155-foot tower (reputedly the highest in the world on this type equipment) is of unusual interest because of the fact that it is yielding seven "cuts" simultaneously. The tower gives seven streams, and its operation is greatly simplified by the installation of De Florez remote control valves in the receiving house. These valves permit the control of each cut from the still by the operator in the receiving house and eliminate the necessity of manually operating the tower takeoff valves, which would be difficult due to the unusual height of the tower. The still fires with powdered coal normally, although it can be fired with oil.

The original tube still at the plant, capable of handling 2,500 bbls. per day, is the first tube still for Pennsylvania Grade crude ever built by Foster Wheeler.

Batch stills formerly used at the plant are being utilized for rerun work at present, while a number of old "cheese-box" stills have been condemned and will be removed to make way for modern equipment.



*Corner of refrigerating plant for chilling oils.*

The lub oil stock, after leaving the 7,500-bbl. still, is contract filtered and mixed with naphtha in its progress through the refining cycle. The mixed stock enters the centrifuging house at a temperature of 60 degrees below zero, this exceptionally low temperature being attained in order to give the finished oil its unusually low pour test.

The refinery has 900 tons of refrigeration capacity and 40 Sharples supercentrifuge machines. These machines are run at 15,000 r.p.m. and dewax by centrifugal force, the oil flowing freely at a temperature well below zero. Following the dewaxing operation, the oil is run to a new Foster Wheeler rerun still of 8,000 bbls. capacity, where the naphtha is removed and "Mobiline" emerges as a test product. The 8,000-bbl. rerun still is also fired normally by pulverized coal, although equipped to burn oil when desirable.

The contact plant at the Wellsville refinery represents an innovation in Pennsylvania Grade crude refining procedure. The oil is decolorized at this plant at temperatures corresponding to gasoline motor operating temperature, eliminating all coloring matters and gummy substances. The resulting oil, which is filtered three times, is an exceptionally clean lub. Oil is handled at the contact plant through an elaborate series of heat exchangers, counter flow of the cool and heated oil giving the incoming oil approximately 75 per cent of its required heat before it gets into the contact plant.

Acid and earth are used at the Sinclair refinery here in the treatment of kerosene, the product finally passing through Sweetland filters for the earth removal. The plant produces about 12 to 14 per cent kerosene from its crude run and is currently turning out between 800 and 900 bbls. of kerosene daily.

The light oil treating plant at the refinery is producing approximately 1,800 bbls. of gasoline per day at present.

The Wellsville plant does not do any wax finishing, and all wax produced is shipped in tank cars to the Sinclair refinery at East Chicago for sweating and finishing.

### Steam Plant

The boiler house at the Sinclair plant here is one of the most modern in eastern refineries. The plant turns out steam at 400 pounds pressure. The steam passes through two Moore turbo-generators, which generate the current necessary for the refinery. After being used for the generation of "juice" for the refinery, the steam leaves the turbo-generators at 125 pounds pressure and is then utilized in processing operations in various parts of the plant. The boiler house is equipped with three stoker-fired boilers of 125 pounds pressure each and two boilers of 400 pounds pressure. The latter are automatically fired with pulverized coal, and have push button control to regulate fuel feed, dampers, air fans, etc.

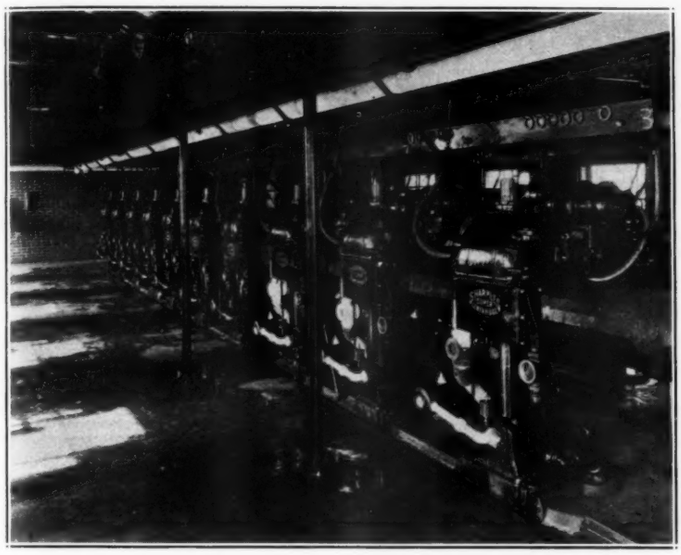
An up-to-date barrelling plant has been installed at the refinery. The barrelling

tank is on the second floor of the building, as is common refinery practice, the oil flowing by gravity to the barrelling tables where it is packed in barrels, half barrels, and 5-gallon containers for shipment.

A modern pipe shop has been established at the plant, and a well equipped machine shop has also been added to the refinery's equipment. Car shops at the refinery have been modernized and are now capable of handling repairs on six tank cars at one time.

**Cracking Unit**

Excavation work is now being done for the erection of a two-stage cracking unit which will be built next spring as the final step in the current expansion program. The new unit will have a De Florez heater with the remainder of the cracking equipment being of a type designed by Sinclair engineers. The new still will have a capacity of 2,000 bbls. per day.



*Battery of centrifuge machines operating at 15,000 r.pm. They remove wax from bright stock which has been chilled to 60° F. below zero.*

Crude oil requirements at the refinery are taken care of by two pipe lines which enter the plant. These lines, of 3-inch and 4-inch diameter, respectively, handle crude for the Sinclair Wellsville refinery exclusively.

Crude is gathered from more than 8,000 wells, with gathering lines converging to the nearby towns of Bolivar and Allentown, N. Y., from which points it is pumped to Wellsville.

The two pipe lines have daily capacity somewhat in excess of the 10,000 bbls. daily which the new plant calls for.

Expansion of refining capacity at Sinclair's plant here has made necessary the addition of considerable new steel storage capacity. The largest tank at the refinery formerly was of 25,000 bbls. capacity; the plant now has three 80,000, one 55,000, one 35,000 and other tanks, to the number of about 300.

Shipping facilities have also been extended to take care of the enlarged plant capacity. The refinery has close to 2 miles of sidings and trackage, and a loading rack at one end of the plant sufficient to load 20 tank cars with lub oil simultaneously, while at the light oil loading racks at the other end of the plant, sufficient equipment has been installed to make possible the loading of 20 tank cars with gasoline or kerosene at one time.

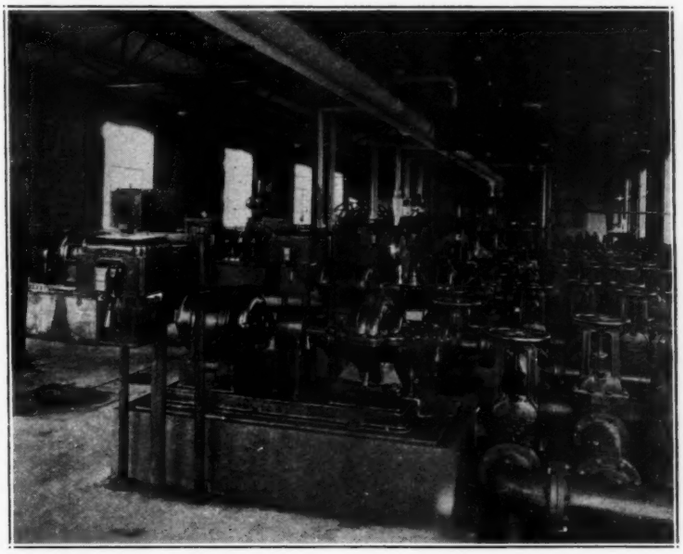
The refinery as a result of its increased capacity now requires a vast quantity of water. A large new pump house and dam have been built on the Genesee River, which passes the plant.

**History of Plant**

Wellsville, the home of the new Sinclair refinery, has an extremely picturesque oil history, dating back to June 12, 1879, when the O. P. Taylor well, No. 1 Triangle, was brought in, signalizing Allegany County's entrance into the oil industry as a producer. The old Taylor well is still producing, and is believed to be the oldest producing well in the United States.

Completion of "No. 1 Triangle" was followed by many others, and considerable crude production was built up. In 1901, the Wellsville Refining Co., backed by the old Union Petroleum Co. of Pennsylvania, was organized and placed in operation. The old Wellsville refinery was the forerunner of the present Sinclair plant. This refinery had a capacity of 700 bbls. of crude oil daily, and the plant, with storage tanks, occupied a tract of 15 acres. The present Sinclair refinery here occupies 100 acres of land.

The original Wellsville refinery was organized by James H. McEwen, James Macken, W. J. Richardson, A. R. Doherty, Henry Norton, A. C. McDonald and A. C. Woodman.



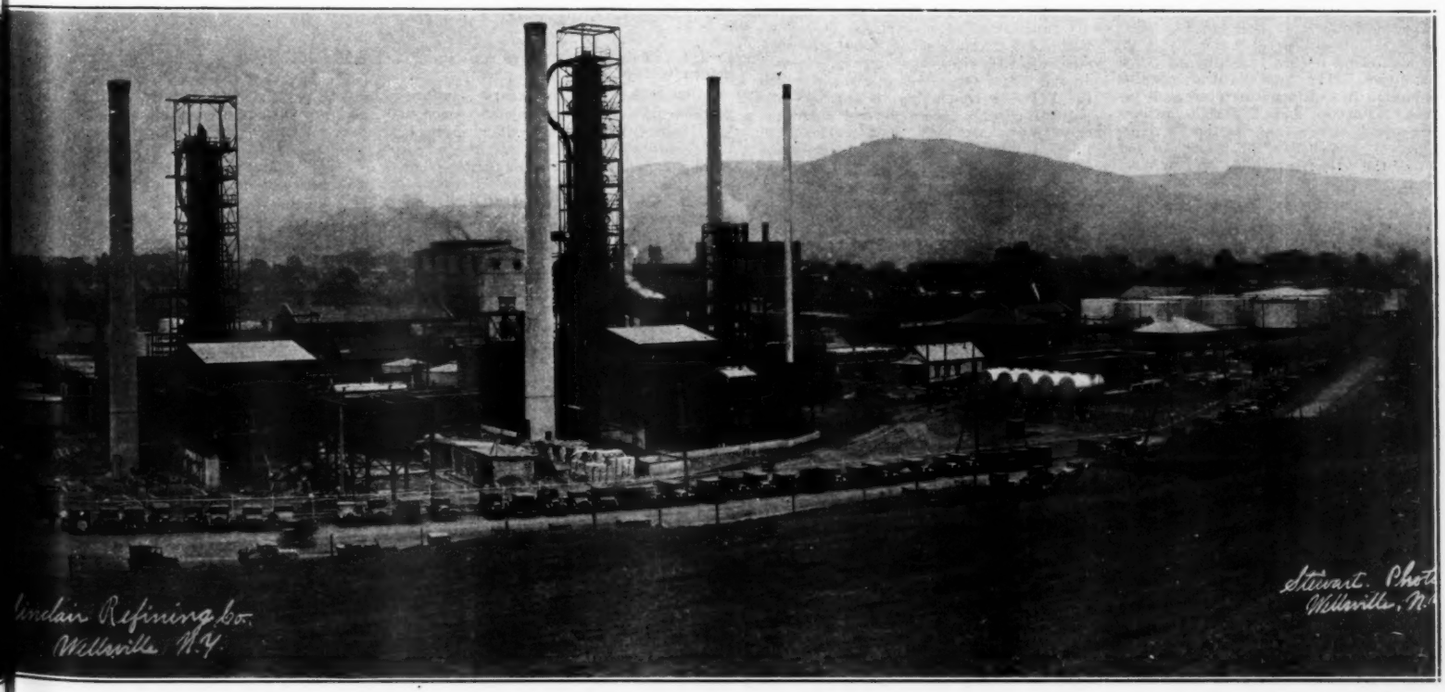
*View of pump house showing motor-driven centrifugal pumps.*

The first Wellsville refinery concentrated its output largely on kerosene and steam refined cylinder stocks for steam engines, for which there was a ready demand at the time. Benzine, at that time virtually a waste product, was produced only in a limited way. The refinery also produced wax distillate, which was originally shipped to other refineries for finishing. In 1905, however, a wax plant was added and the Wellsville refinery began the production of finished wax and light lub oils.

With crude production in Allegany County on the wane from 1910 on, the operations of the Wellsville refinery, which had been substantially enlarged with the passage of years, began to fall off and in 1915 the plant reached its low point of productivity, with runs down to 400 bbls. per day.

Repressuring soon made its advent, however, and the petroleum industry in the Wellsville area took on a new lease of life. Production of crude recovered and showed a material gain and the refinery's operations were substantially increased. In 1918, the Union Petroleum Co. of Pennsylvania, which had originally backed the Wellsville refinery, acquired

(Continued on Page 192)



# Natural Gasoline Situation Changing

## New Supply From Kettleman Hills Responsible for Higher Recovery Products on West Coast. Six Plants Operating

By C. O. Willson

The large production in the Kettleman Hills Field with probable increases for the coming year has materially changed the natural gasoline situation in California both from a marketing and manufacturing angle.

The Kettleman Hills Field, generally conceded to have greatest potential production of high gravity crude oil and natural gas of any area which has been discovered up to this time, takes equal rank in possibilities from the standpoint of natural gasoline manufacture. Although development work has been held back since the discovery well was drilled, the field now has six natural gasoline plants in operation with a seventh to be completed this month.

The five plants are operating with casinghead gas from eight wells. The output is a little over 500,000 gallons or approximately 12,000 bbls. daily. The crude oil production at present is between 24,000 and 25,000 bbls. which means that for every barrel of crude oil produced there is a half barrel of finished natural gasoline. In the case of three plants the natural gasoline production is almost equal to the crude oil production of the wells from which the casinghead gas is obtained.

The importance of this large production is readily appreciated when the entire California natural gasoline situation is analyzed. The total natural gasoline production in California at present is between 2,100,000 and 2,200,000 gallons daily which shows that Kettleman Hills is already responsible for nearly 25 per cent of the output available on the West Coast.

### Marketing Trend

In the marketing end, the Kettleman Hills development has brought important changes in specifications which it now appears will be accepted by all manufacturers and buyers in California. All of the 500,000-gallon production previously mentioned has a minimum recovery of 96 and some of it recently had recoveries as high as 98. This situation is in contrast to that prevailing a year or so ago when the bulk of the natural gasoline output did not exceed 90 per cent recovery with a substantial part of the output not exceeding 85 per cent recovery.

The large output of 96 per cent recovery natural gasoline available from the new field naturally has been reflected in the purchases made in other areas. The bulk of the natural gasoline output in California for several years has come from the several fields of the Los Angeles Basin. In the first plants no attempt was made to stabilize the finished natural gasoline as is now general practice in new plants of all fields. A number of these older plants are still in operation and they have not been modernized with stabilizing equipment. The smaller manufacturers have usually sold their entire output to the larger refiners who transported the gasoline from the plants to their refineries in the Los Angeles area by pipe line. Long time contracts between refiners and manufacturers based either on a flat price or an agreed differential under the tank wagon gasoline market in Los Angeles, were the usual basis of purchase and sale. Without rectification equipment, the natural gasoline had the specifications usually obtained in a combination compression and absorption operation. Any stabilization before blending with refinery gasoline took place at the refinery and not at the gasoline plant.

This situation had changed somewhat before the advent of Kettleman Hills as a major manufacturer of natural gasoline. In line with the trend in other parts of the country, many of the manufacturers, especially those building new plants have installed stabilizing equipment which has enabled them to make a closer separation between the desirable and undesirable properties in their products.

It now appears that with the start of the new year, most contracts in the Los Angeles Basin territory will be on a basis which will give the buyer a product comparable with that obtained in the Kettleman Hills Field. Some contracts have already been cancelled or renewed on this basis. One case is cited in which the buyer is continuing to purchase the natural gasoline from several manufacturers on a new price basis. The gasoline is tested at the refinery and the manufacturers paid on a basis of the quantity meeting agreed requirements as to recovery. One such contract is said to specify a maximum butane content of 25 per cent.

Considerable concern is expressed in marketing circles as to the probable attitude of two or three major buyers who have not yet made known their plans for the coming year. It is assumed that they will insist on a new contract basis which will either require the manufacturer to install equipment which will enable him to manufacture higher recovery products or prices will be reduced on the grades now being delivered.

### Sources of Supply

In this connection, although Kettleman Hills is given the major credit for bringing about an overproduction situation which has strengthened the position of the buyers in determining prices and new specifications, there are other new sources of supply which have been contributing factors. Four new plants have been built as the result of the development work in the Playa Del Rey Field in the Los Angeles Basin. Production has been maintained or increased in some of the older fields where new wells have been completed and where the gas is increasing in gasoline content. As in the case of the Mid-Continent, proration programs have reduced the supply of casinghead gas available in the older pools but these programs tend to postpone the natural decline of the fields and due to this fact many of the older plants expect to have adequate supplies for an indefinite field.

In the Santa Barbara area, natural gasoline production has been increased in the Elwood Field and further south in the Ventura Field the casinghead gas available from the new wells is more than offsetting the decline in the old wells.

It is believed that the Lost Hills-Belridge area in Kern County, about 60 miles south of Kettleman Hills, will also be a large producer of natural gasoline within a year. This is the result of the bringing in of the No. 15 well of the Belridge Oil Co. located in the North Belridge Field. This well has a gas flow of 50,000,000 feet of gas daily. A plant to take care of this gas was completed last week by the Belridge company. Several wells are drilling in this section and all indications point to large casinghead gas supplies which will require additional plants. This gas is similar to that found in Kettleman Hills.

### Kettleman Hills Development

Curtailment programs which were made effective shortly after the discovery well was completed by the Milham Exploration Co. a little over two years ago have prevented a development in the Kettleman Hills Field, which within a period of a few months could have flooded the West Coast with crude oil and natural gasoline. Only eight scattered wells have been allowed to operate although the proven area is now believed to be 12 miles long and 1½ miles wide. At this time, a unit plan of operation is being perfected which aims to continue curtailed operations so that the crude oil output will not be a menace to the California price structure as has been feared by many familiar with the field's unlimited possibilities in the production of crude oil, natural gasoline and natural gas.

All branches of the oil industry on the West Coast are closely watching the developments in restrictive operation under a unit plan realizing its direct relationship to satisfactory conditions within the oil industry not only next year but for several years to come. Because of the relatively high production of casinghead gas in relation to the crude oil production, the field is of particular interest to the natural gasoline branch of the industry.

The unusual qualities of the crude oil are directly reflected in the natural gasoline plant operations. The crude oil, as is generally known, has an average gravity around 60 A.P.I. and most of the crude oil shows a gasoline yield of from 75 to 85 per cent by natural distillation. The residuum is a light distillate so there are no heavy ends commonly found in all crude oils.

The fact that the so-called crude oil is largely gasoline is naturally reflected in the properties of the gasoline which are absorbed from the casinghead gas at the gasoline plants. The contact of the gas and the gasoline fractions in the wells and traps at high pressures results in some of the fractions being absorbed by the crude which with lower gravity crudes would pass out of the traps as casinghead

*Latest plant to start operating in Kettleman Hills Field. Owned by Superior Oil Co.*

*Natural gasoline plant of the Western States Gasoline Corp., Kettleman Hills Field. This plant has had a peak production in excess of 150,000 gallons daily.*

gas and later be recovered in the natural gasoline plants.

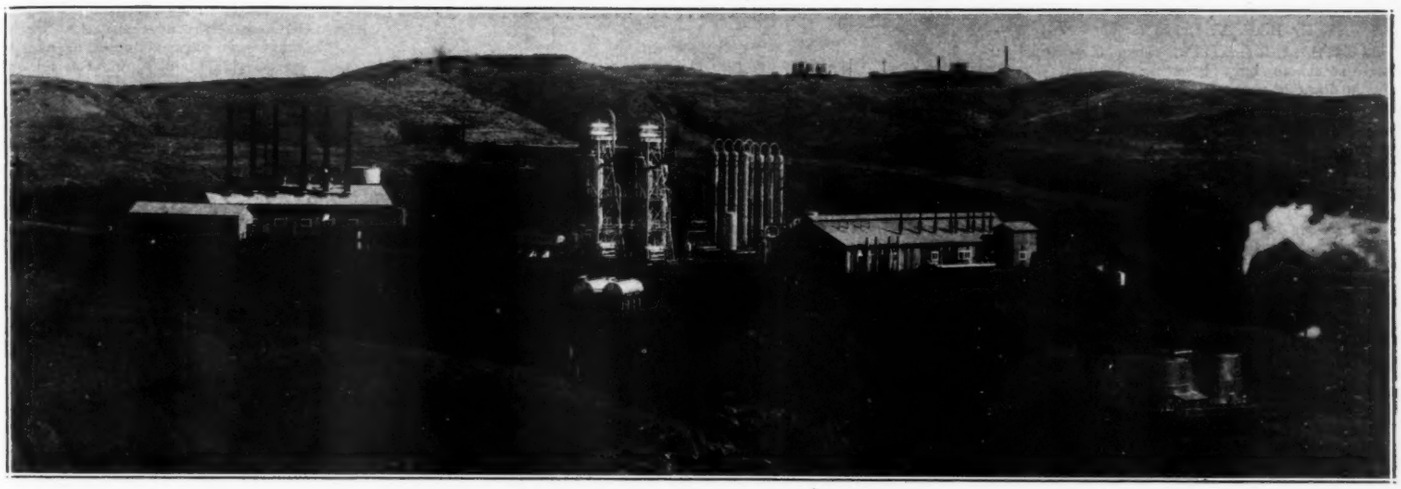
One manufacturer explains the relatively high vapor pressure of the finished gasoline as due to this condition. Much of the 96 recovery gasoline has a vapor pressure of 22. In most fields such a high recovery would mean a vapor pressure from 4 to 10 points lower. This manufacturer explains that operation of a well in the Kettleman Hills Field in effect means the operation of two gasoline plants. He refers to the contact between the high gravity crude and the gas in the well as one plant operation which is followed by the final absorption of the gasoline fractions in the gasoline plant proper. In this connection, the Standard Oil Co. of California which is the largest single producer in the field with more than 50 per cent of the proven acreage, has found it expedient to stabilize the crude oil as it comes from the traps before going to storage. This operation consists in passing the crude oil through a stabilizer releasing the fixed gases and undesirable light ends which result in large storage losses if permitted to remain in the crude oil.

**Modern Plants**

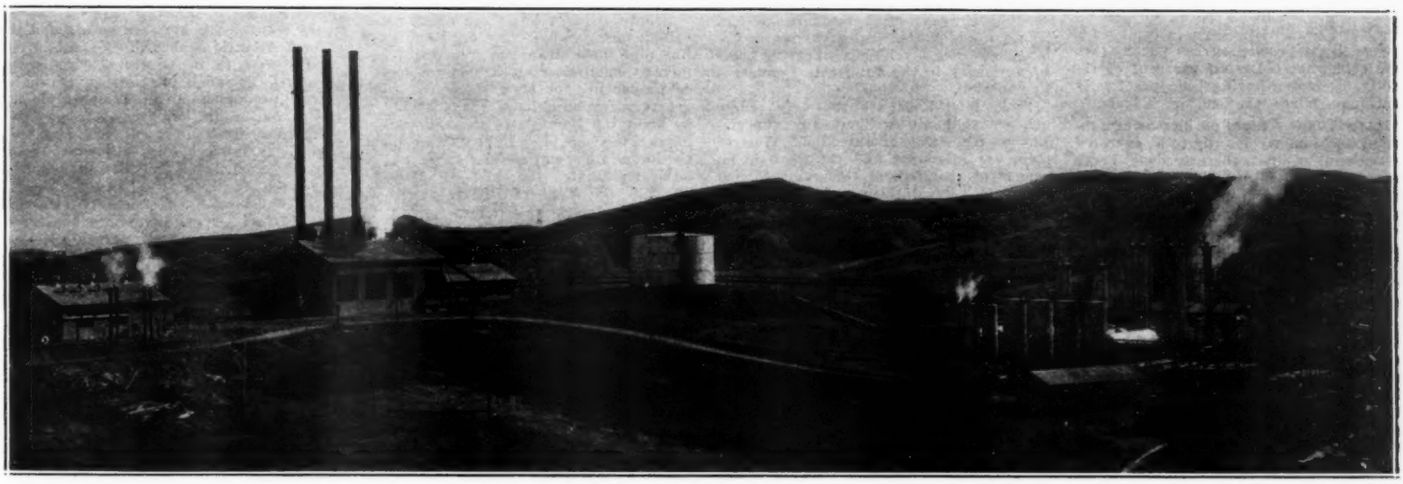
The six plants are all operated with well pressure. A back pressure is maintained at the wells which gives a gas pressure at the plants of from 430 to 470 pounds. The absorption of the gaso-

(Continued on Page 136).

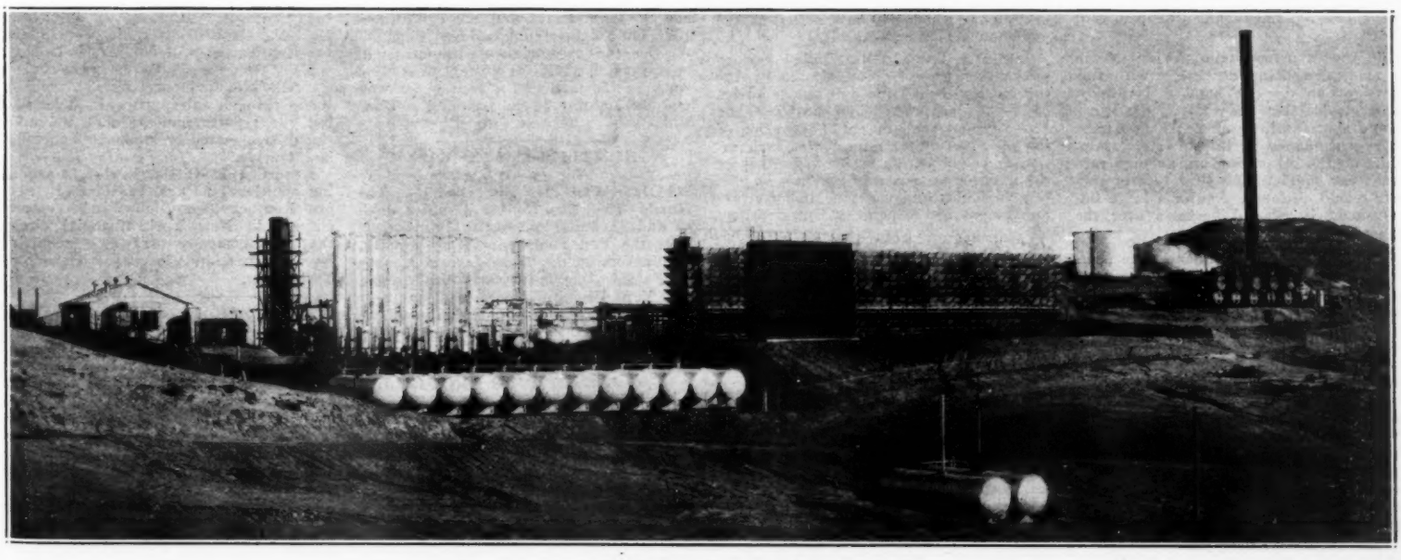
## THREE OF THE SIX NATURAL GASOLINE PLANTS IN THE KETTLEMAN HILLS FIELD



*Standard Gasoline Co. (Standard Oil Co. of California) No. 2.*



*The Texas Company of California.*



*Los Nietos Producing & Refining Co.*

# Pipe Line Construction News

## SEVERAL LARGE PROJECTS AND INQUIRY FOR PRICES

By B. E. V. Luty

PITTSBURGH, Pa., Dec. 8.—There seems to have been no further slowing down in pipe and tube mill operations. The rate in general is a low one but it does not appear that there is any further tapering off as the year-end is approached. The big decrease occurred some weeks ago when line pipe production dropped to a low rate. In standard pipe, indeed, some mills report that if anything their business is a trifle better than two or three weeks ago, and some estimates are made that total production of pipe and tubes will be substantially as heavy this month as last.

Small orders for line pipe have been coming in at intervals, in large and small sizes for short connecting lines in the south. There are several large projects and there has been actual inquiry out for prices but there is no assurance as to when orders will be placed. Obtaining of franchises on favorable terms sometimes takes much time and this is one of the points in the way of buying just now, another being financing, while still another, apparently holding up one or two projects, is the question whether the projectors may not merge with concerns already having lines.

Steel ingot production has passed to a rate somewhat below 40 per cent of capacity, decreases having been practically continuous since the end of August.

Interest now centers on increasing tonnage after January 1, fully to be expected on seasonal grounds, the precedents being very clear, and also perhaps by general business improving. Tonnage has lately been so light that it would be very easy for it to increase. This quarter's steel ingot production will hardly total 7,000,000 tons, representing a rate of not over 28,000,000 tons a year and since 1912 only 1914 and 1921 have shown so low a total.

There is no way of comparing this year as a whole with last year or other years, this year having been made up of such different parts. In ingot production the first quarter ran a trifle over 12,000,000 tons, the second quarter a trifle under that figure, and the third quarter about 9,000,000 tons, with the fourth quarter as stated being unlikely to reach 7,000,000 tons. The year's total would be about 40,000,000 tons, with the first half running 20 per cent above this average and the fourth quarter fully 30 per cent under it.

By the same token no prediction can be made comparing next year with this year, for on the one hand it is almost inconceivable that the whole of next year should show as little as 28,000,000 tons, or a continuance of this quarter's rate, while on the other hand an average rate next year equal to the first half of this year would obviously require a large improvement in general business over the present level.

Following various declines of the past, steel prices are now holding well at present levels. Standard pipe is reported perfectly firm. It develops now there was some question about rails, which have not changed in price since the advance of eight years ago, but it appears that railroad men who were doubtful are now convinced that the price will hold and more rail buying is to be expected. To date the seasonal movement has been very sluggish. Bars, shapes and plates are holding well at 1.60 cents and this price will presumably be named for first quarter. Sheet and strip order books are already open for the quarter but there is very little contracting. The prices seem to be holding except for some shading in galvanized sheets.

## BILL FOR FEDERAL COMMISSION TO CONTROL NATURAL GAS LINES

By C. E. Kern
*Washington Bureau, The Oil and Gas Journal*

WASHINGTON, D. C., Dec. 8.—A bill was introduced in the Senate today by Senator Capper of Kansas to regulate interstate commerce by pipe line agencies operating in the purchase, production, distribution, sale or transportation of natural and artificial gas.

"This bill was introduced after conference with the Kansas Public Service Commission," said Senator Capper when seen by the representative of The Oil and Gas Journal. "The bill was drawn by the legal department of the Kansas commission and I introduced it as they drew it. I am not sure it will meet with the approval of Congress in this form as there is opposition to the creation of additional commissions. Others may prefer placing this pipe line industry under the Interstate Commerce Commission.

"I have written the people in Topeka interested in this measure in respect to that phase of the proposed legislation. There would not be much change in the language—just a reference to giving needed authority to the Interstate Commerce Commission.

"Gas pipe lines are the only public utilities that are without any supervision or regulation of any kind. Most of them are interstate and yet there is no agency of the Federal Government with power to control them and being interstate the state commissions cannot do anything. They can fix rates as they please."

"Have you in mind any limitation to be fixed on gas pipe lines charges," the senator was asked.

"No, I have no particular earnings in mind and I do not think our state commission has. It would be for the commission to consider and determine reasonable rates. The Interstate Commerce Commission by law limits the railroads to a profit of 5½ per cent of their value. That was done by the Cummings-Esch Act. Congress declared that to be reasonable earning power. However that is the only instance I believe in which Congress has undertaken to say what is a reasonable rate of earning."

"Will you ask the interstate committee to take up this bill for consideration at this session of Congress,"

"Oh, yes, that will be done. We will push this measure with the purpose of obtaining its early passage."

"What support do you think it will receive in the Senate,"

"I think it will be favorably received, at least so far as I know it will be well supported."

Senator Capper has given no attention to any plan for placing the oil and gasoline pipe lines under the Interstate Commerce Commission but he doubted whether proponents for such legislation could get very far with it, although so far as he knew the interests of the railroads in having the oil pipe lines placed under the interstate commerce law might be perfectly legitimate.

**Text of Bill**

The text of the bill follows:

Section 1. That a commission is here-

(Continued on Page 133)

## CITIES SERVICE CO. AFTER KENTUCKY GAS

Representatives of the Cities Service Co. have been engaged in the acquisition of leases, rights and options on oil and gas producing lands in the natural gas district of Kentucky. This is the first important expansion undertaken by the company in a territory where hitherto the principal natural gas interests have been the Columbia Gas & Electric Corp., the Louisville Gas & Electric Co. and Union Utilities, Inc.

While officials of the Cities Service group would not comment on reports that an important natural gas acreage had been assembled by the company in that State, it is understood the reported activity has been in line with the increasing natural gas interests of the company in other states, on both sides of the Mississippi.

It was indicated in natural gas circles that the Cities Service interests were seeking to match the growth of other leading natural gas systems in the Mississippi watershed, as typified by the expanding influence of the United Gas Corp., the Moody-Seagraves-American Utilities and General group, the United Light & Power-North American Light & Power-Lone Star Gas group and the Columbia Gas & Electric System in the area between the Mexican border and the North Atlantic Seaboard.

The activity of all these systems has centered as much on the acquisition of large producing areas in natural gas fields as on the building of natural gas pipe lines hundreds of miles long between the fields and the markets. Competition to obtain markets for natural gas also has been keen.

In the absence of official information the Cities Service plans are largely a matter of surmise, but natural gas engineers are of the opinion that the organization is seeking new producing territory in order to increase its reserves. On this reasoning it is expected that one or more pipe lines will be built by the company to link its new natural gas acreage with the Greater Chicago market.

Cities Service Co., the Insull interests, the Standard Oil Co. of New Jersey and a group of other oil companies are associated in the building of a Texas-Chicago natural gas pipe line, work on which is in progress. In the announced plans of the group the intention of prolonging this line east of Chicago to link up with other markets was recorded. It is assumed that by connecting the new Kentucky acreage with this line from the East the natural gas resources available for this market will be increased.

The Cities Service system formerly held a small oil producing acreage in Kentucky through subsidiaries, it is learned, but the reports indicate that the additional area leased or otherwise controlled is extensive.

Reports that Cities Service is acquiring additional natural gas lands in eastern Kentucky were joined with reports current in New York financial circles that the company was also acquiring leases on gas lands in northwestern New York State.

## AMERICAN ENGINEERS TO BUILD RUSSIAN LINE

Technical assistance in the construction of a gas plant, and possibly a 150-mile long gas conduit from the Moscow Brown Coal Basin to the City of Moscow, will be rendered by Lucas & Luick, consulting engineers of Chicago, according to an agreement just signed at the offices of the Amtorg Trading Corp. The contract was concluded by the Moskhimenergostroy (Chemical & Power Construction Board) of Moscow, which will have actual charge of the construction work.

Lucas & Luick will examine various alternative projects worked out by the construction board and will render advice as to the one it considers most feasible. These projects call for: (1) Location of the gas plant at the mines, with carburation and purification of the gas either at the mine or at a central compressor station in Tula, and the pipe line conveying the gas to the point of consumption; (2) location of the gas plant in Tula with transportation of coal from the mines to the plant; (3) location of the plant in Moscow with transportation of coal from the mines to that city.

T. J. Lucas of the American firm has just left for Moscow with two other engineers.

### LATERAL LINE FOR PHILLIPS

TOPEKA, Kans., Dec. 6.—The Public Service Commission granted an application of the Phillips Pipe Line Co. seeking permission to construct a lateral pipe line from near Paola, Kans., through Miami, Johnson and Wyandotte Counties, to near Kansas City. The line will connect with the company's 8-inch line from Borger, Tex., to St. Louis, near Paola.

## CONTRACT AWARDED FOR PUMPING STATIONS

Arthur G. McKee & Co., engineers and contractors, Cleveland, Ohio, have received a contract from the Great Lakes Pipe Line Co., Ponca City, Okla., to construct seven pumping stations with their respective boiler houses. The work is in connection with the new gasoline pipe line from Ponca City, Okla., to Des Moines, Iowa, where the line branches going to the Twin Cities, Minneapolis and St. Paul, Minn., and also to Chicago, Ill. The total amount involved in building the stations with their equipment will be approximately $650,000. Construction work on the pipe line is well under way and the building of the pumping stations will start in the near future.

### HUMBLE LINE TO VAN

FORT WORTH, Tex., Dec. 8.—The Humble Pipe Line Co. has 37 miles welded and 71 miles laid on its 10-inch line from the Van Pool, Van Zandt County, to Waskom on the Texas-Louisiana state line. This line is to carry crude from the Van Pool to Moore Station near Shreveport on the Standard Pipe Line Co. of Louisiana's main line from Oklahoma to Baton Rouge.

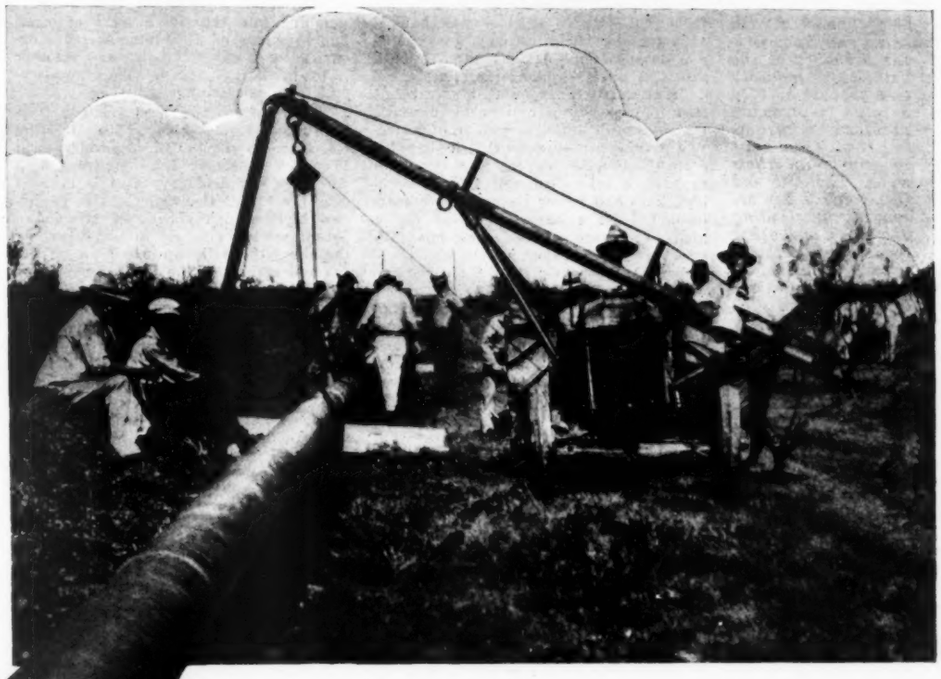
### NEW JERSEY PIPE LINE BILL

A bill has been introduced in the New Jersey Legislature and referred to the judiciary committe providing for an extension of consents, grants and franchises for laying pipe lines to include persons, other than public and quasi corporations, and that such consent shall be subject to cancellation and revocation on 30 days' notice given by the State Highway Commission.

### PURE TO USE AJAX

To participate in the shipment of crude oil through the new Ajax Pipe Line Co., which it is expected will be completed around January 1, the Pure Oil Co. has asked the Texas Railroad Commission to increase its daily allowable output from the Van Pool, which now is fixed at 27,500 bbls. daily. The additional production will be transported through the line that the Humble Pipe Line Co. and the Standard Oil Co. of Louisiana, both subsidiaries of the Standard Oil Co. of New Jersey, have about completed into the field.

# The Weakest Point . . . .



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# Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

***In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.***

***Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.***

***In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.***

***In case an immediate answer is important, one will be given by mail if the writer requests it.***

## DO PIPE COATINGS PROTECT?

**Although thousands of dollars have been spent on different kinds of coatings for pipe lines, can it be said that these coatings have proved a success and that the money put into them has been well spent? I have heard of several cases where these coatings were a disappointment and in all probability meant loss instead of profit.—F. S. H.**

It is true that some of the experiments in the use of coatings to protect pipe lines from corrosion proved disappointing, just as some experiments in most other industrial fields do. Little was known at first as to what constituted a good coating and probably less was known about the best way to apply it. Some coatings failed because of inherent defects in making them. Others failed because of inefficient application.

Probably too much was expected of protective coatings in the early period of their use. Pipe line companies now are using coating materials to a greater extent than ever before, but with a saner comprehension of their benefits and their limitations. At the same time they are developing methods of combatting corrosion in conjunction with the use of protective coatings. From reports received this plan of procedure is yielding encouraging results.

Pipe line companies, as was pointed out by William G. Heltzel, general superintendent of the Stanolind Pipe Line Co., in The Oil and Gas Journal of June 5, 1930, now try to ascertain where extremely corrosive areas exist along their lines and then recondition the pipe in these areas when necessary, protective coatings being used as a rule. Such corrosive areas are found through carefully kept records of corrosion failures, through study of electrical currents on the lines and electrical soil resistance.

It has been learned through the work of Dr. Gordon N. Scott that pipe line coatings fail in the Mid-Continent area from soil stresses or other mechanical causes rather than through any chemical deterioration. It has been learned also that oil leaks along pipe lines cause an accelerated corrosion that may result in a failure within two or three years. Of course oil leaks destroy the protective coatings. Consequently, it has become the practice of pipe line companies to remove oil-soaked soil from around pipe lines and renew the protective coatings. Oil leaks have accounted for a high percentage of the corrosion failures in the Mid-Continent area. It is known that corrosion can be looked for where the following conditions exist: Railroad crossings, along railroad rights of way where the corrosive acids have accumulated after having been leeched out of cinders, ballast, refuse, etc., on the roadbed; highway crossings, salt water areas, water courses, creek crossings, barn yards, swamps and the low areas adjacent to rivers.

In addition to the relatively small reconditioning projects where unusually severe corrosive agents are found and in which protective coatings are employed to correct conditions, it should be mentioned that petroleum and natural gas companies are finding it advisable in the light of known facts to take up, clean, coat and rebury hundreds of miles of pipe line without regard to whether it traverses areas of extreme corrosion or not. Also pipe manufacturers are applying protective coatings before their product leaves the mill.

These facts indicate that genuine progress has been made in producing and applying protective coatings for pipe. "The industry has not abandoned the use of protective coatings for the corrosion of underground oil pipe lines," says Mr. Heltzel. "The industry cannot blame the manufacturers of protective coatings entirely for the failures of these coatings; much of the blame must rest with the pipe line company on account of poor field applications. It is true that protective coatings have failed in very corrosive areas; but it is believed that these coatings will afford protection for many miles of these pipe lines against average soil corrosion for years to come."

## FIGHTING OIL FIELD FIRES

**Will you tell me, please, something about the methods used in extinguishing oil field fires and about the operation of these methods? I would appreciate some references to some books or any other literature regarding this subject.—J.M.S.**

Many ingenious devices have been employed to extinguish oil or gas fires, and until recent years the one probably relied upon to give the most effective results in serious fires consisted in directing great jets of steam on the flames from boilers set up for the purpose.

The United States Bureau of Mines, Washington, D. C., has published a treatise, designated as Bulletin 170, on "Extinguishing and Preventing Oil and Gas Fires," by C. P. Bowie. This bulletin can be obtained from the Government Printing Office in Washington for 20 cents. Mr. Bowie discusses steam smothering lines and the frothy-mixture systems for oil fires and the steam method and hood method for gas fires. To these should be added the shooting method.

To fight fires with live steam, it is customary to set up a battery of oil field boilers conveniently close to the fire and then build up a good head of steam in each boiler. These boilers are connected through a manifold to a discharge line that is led to the well on fire and a large volume of steam is turned into the blaze. If enough steam is available it smothers the fire by exclusion of oxygen.

The use of frothy mixtures consists in pumping into the fire a mass of small bubbles made of a frothing mixture designed to envelope the fire and smother it by excluding oxygen. There are several frothing mixtures available.

The hood method used on gas fires with good results consists in diverting the flame to the top of a movable hood to which is attached a long pipe, and when the complete apparatus is lowered over the top of the well the fire is carried high enough above the ground to permit workmen to get to the casing at the top of the well, cap it and cut off the gas and extinguish the flame.

A method of fire extinction recently introduced and said to have been attended by success consists in breaking up solid water streams into minute fog particles, which cool the flames by absorption of heat and smother by absorption of oxygen.

The shooting method, which has become an important one in the extinction of oil and gas well fires, consists in the use of dynamite or nitrogelatin (a form of nitroglycerin). The explosive, protected by asbestos wrapping, is run into the gas beneath the flame or alongside the column of flame, where it is set off, creating a vacuum for a few seconds and thus snuffing out the fire. The well then can be capped and brought under control. An instance of the efficacy of this method was afforded by a fire in the Earlsboro Pool in Oklahoma. The well, flowing 200 bbls. of oil an hour, with a small quantity of gas, caught fire from a spark accidently generated.

An expert in the extinction of oil field fires was summoned. The oil as it gushed from the tubing was striking the oil saver, which threw it in the form of a great umbrella, about the derrick. The first step was to loosen the master gate and the control head with a charge of the gelatin. These then were removed by means of long hooks. The oil thus was allowed to spurt straight up into the air in a great column of flame.

By using steam, water and one of the commercial fire extinguishers all flames on the ground were put out. Thirty quarts of nitrogelatin then was placed close to the column of fire by the expert and his assistants, the explosive wrapped thickly in asbestos being conveyed in an iron cart to the spot chosen by the operators, upon whom streams of water were played and who wore asbestos suits. The explosive was set off by an electric detonator, instantly extinguishing a fire that had been consuming 4,800 bbls. of oil a day.

Aviation plays an important part in the modern methods of dealing with oil field fires, for in some instances the expert fire-fighter and the materials needed are rushed to the scene in an airplane, saving precious hours.

You should be interested in the work done by the several committees in the American Petroleum Institute dealing with fire prevention in marketing, refineries and production in oil fields and you probably can get copies of the reports of these committees from the American Petroleum Institute, 1508 Kirby Building, Dallas, Tex.

### WHY WAS IT CALLED THAT?

**KEY ROCK**

"Key rock" is a term applied to a distinctive formation so located on a structure that it can be traced easily and thus form a marker for geological survey work. It may be applied also to a stratum passed in a well which may mark some geological formation.

## OUTLOOK FOR OIL ENGINEERS

**Please inform me what is the demand for engineers schooled in petroleum production or refining. Will there be a continuing demand for such engineers? Please advise me about the tendency of technical men in the oil business to leave their profession to enter other vocations. I further want to know what the usual working conditions are, what special abilities the student must possess, how the rewards in this profession compare with the rewards in other vocations and what opportunities there are to obtain employment after taking an engineering course.—A. F. A.**

Answering your questions in about the order in which they are asked, it seems safe to assume that there always will be a demand for engineers in the various branches of the petroleum industry, and that this demand will increase.

The petroleum industry is rapidly becoming a well regulated business. Skill in any particular department is being recognized and the haphazard methods of the past cannot survive under the present highly competitive conditions.

It has been stated that about 65 per cent of the engineers graduated from universities and colleges throughout the country do not follow engineering after leaving college. The probable reasons for this are numerous, but perhaps the most important one is that the young engineer finds that he has made a mistake in taking the course in which he was graduated and so drops it to engage in some other vocation for which he is better suited.

Most of the universities now giving petroleum engineering courses are trying to eliminate from their classes men who do not seem suited to this profession. This elimination is taking place early in the student's college career and in this way he is saved the time and expense of studying subjects foreign to the vocation which he ultimately will adopt. If you as a student indicated in your freshman or sophomore year a tendency to develop into a good petroleum engineer you would be encouraged to continue. Otherwise you would be advised to drop further work along this line.

It is a requirement of most colleges giving petroleum engineering courses that the student work in the field or in the refinery during his vacations and in this way gain practical experience in the application of his knowledge and students showing promise often are engaged by major companies during their college career and can go to immediate steady employment when they graduate.

Out of a class of about 35 students graduated by the University of Oklahoma, at Norman, Okla., last year every one had opportunity to accept a position immediately upon completing his school work. This was true of graduates from some other schools.

Compensation for engineering services has been estimated to average about $3,500 per year, but the salary depends upon the man and the service he is capable of giving.

It is assumed that you have the ground work for an advanced course in engineering and if you can specialize in some particular thing it seems only reasonable to expect that upon graduation you can obtain a lucrative position. However, this department cannot undertake to advise you as to what special subjects you should take up or to predict what you individually will achieve in the petroleum industry.

An industry that is third in importance in this country, and holds a prominent position in many foreign countries, certainly must have opportunities for individuals who prepare themselves to undertake specific work in it.

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*Stocks in all Active Oil Fields*

# CHABELCO

# World Operations Being Felt in America

By W. T. ANDERSON

Americans are being taught by the experience of several industries that trade in basic commodities depends upon the world market.

The oil industry has been aroused by the growing competition of Venezuela but that is only one factor. The opening of the Iraq Field, which may be hastened by the French need for oil, may prove as disturbing as the Russian competition in Europe.

The plight of the copper industry which has been seeking an agreement on curtailment of output in line with demand in view of the enormous accumulation of stocks is another example. If the Katanga mines of the Belgian Congo are not included there is slight hope of success. America is the largest consumer of copper but the market is at the mercy of producers in the heart of Africa.

The sugar situation is another illustration. Cuba has been pressing a plan for segregation of the surplus, taking so much sugar off the market until it can be stabilized, and the American beet sugar industry is equally interested. But half way around the world the producers in Java are holding back on the proposition which can not be made effective without their co-operation.

The present crisis in overproduction with its world-wide effects is forcing this world view of trade upon attention everywhere. Those who used to think only of their business in their own local area are learning that it not only may be but actually has been affected by some development in another quarter of the globe.

In a way industry and business are going through much the same experience the world had after 1914. The sequences of a shot fired in a remote Bosnian village of which few had ever heard are plaguing all of us today. "Splendid isolation" is even less possible commercially than it proved to be politically.

Civilization emerged from the World War convinced of the need for international co-operation. The present wave of overproduction and depression is an impressive argument for world co-operation in industry and business, as the movements in the copper and sugar industries show.

There is just as much need for world co-operation in the oil industry. The markets everywhere reflect the overproduction of crude and petroleum products. Producers in the United States, doing their utmost to keep their output in line with demand, complain that shipments of crude and gasoline from Venezuela nullify their efforts.

Exporters of American and Venezuelan products complain that Russia is overrunning their markets abroad. Rumanian overproduction is another difficulty in Europe.

The desire of the French to get their share of the oil in Iraq in order to build up a petroleum reserve at home for national defense is complicating the situation in the Near East where the other international owners of the Iraq Petroleum Co. are content to keep that field undeveloped until it is needed.

This rivalry and the entrance of another company of British, German and Italian interests, seeking a concession from Iraq, may endanger the whole program and release another flood of oil to submerge the industry.

At the same time scientists and visionaries in every civilized country that is without oil resources are striving to find substitutes for gasoline as motor fuel; although there is no lack of gasoline.

These widespread inventive efforts indicate the universal interest in motorization. In America we have been talking of a possible saturation point, but the registration figures show the rest of the world is just beginning to use motor vehicles.

The gain in the past year or two in foreign registrations has begun to assume the ratio of increase we had in 1920. Foreign registrations in 1930 were 3,000,000 more than the previous year, the total rising to 8,873,948. In 1920 there were only 9,471,000 cars in the United States. Today there are approximately 28,000,000.

Who can assume that within the next ten years the rest of the world may not do as well?

It is a human habit to underestimate the capabilities of other peoples. Yet usually the prophets of disaster are disappointed. The history of the race has been one of progress, despite the interruptions.

It is surprising, for instance, to learn that the installation of telephones in Europe is increasing at a rate nearly twice as large as the rate in North America. Europe now has 10,000,000 phones compared with 20,000,000 in this country.

The higher rate of installation in Europe is not due to any slackening of installations in the United States but to the fact that foreign countries are now in process of rapid expansion and improvement of the service. Europe's total has doubled in 10 years while ours has increased by one-half.

Telephones, of course, are not motor cars, so far as the buying power of a people is concerned, but the remarkable increase in phones in Europe and the rate of gain in motor vehicles shows the progress in the modernization of the older continent and more than suggests the potential market for oil products lying just ahead. Kerosene using countries are becoming gasoline consuming countries.

There is not a leader in the industry of international prominence who is not confident of the future of the oil business, because it is bound to march with human progress.

What has been accomplished in the United States has set the pace and marked the way for other peoples. The necessity of competing with us will compel them to adopt our mechanical methods, our motorized civilization and that means the use of oil.

Great as the present overproduction and potential reserves of petroleum may now appear we shall have need of them all. The more pity that they should now be economically wasted, virtually thrown away at the cost of the producing and refining industry in the struggle for volume rather than value of business.

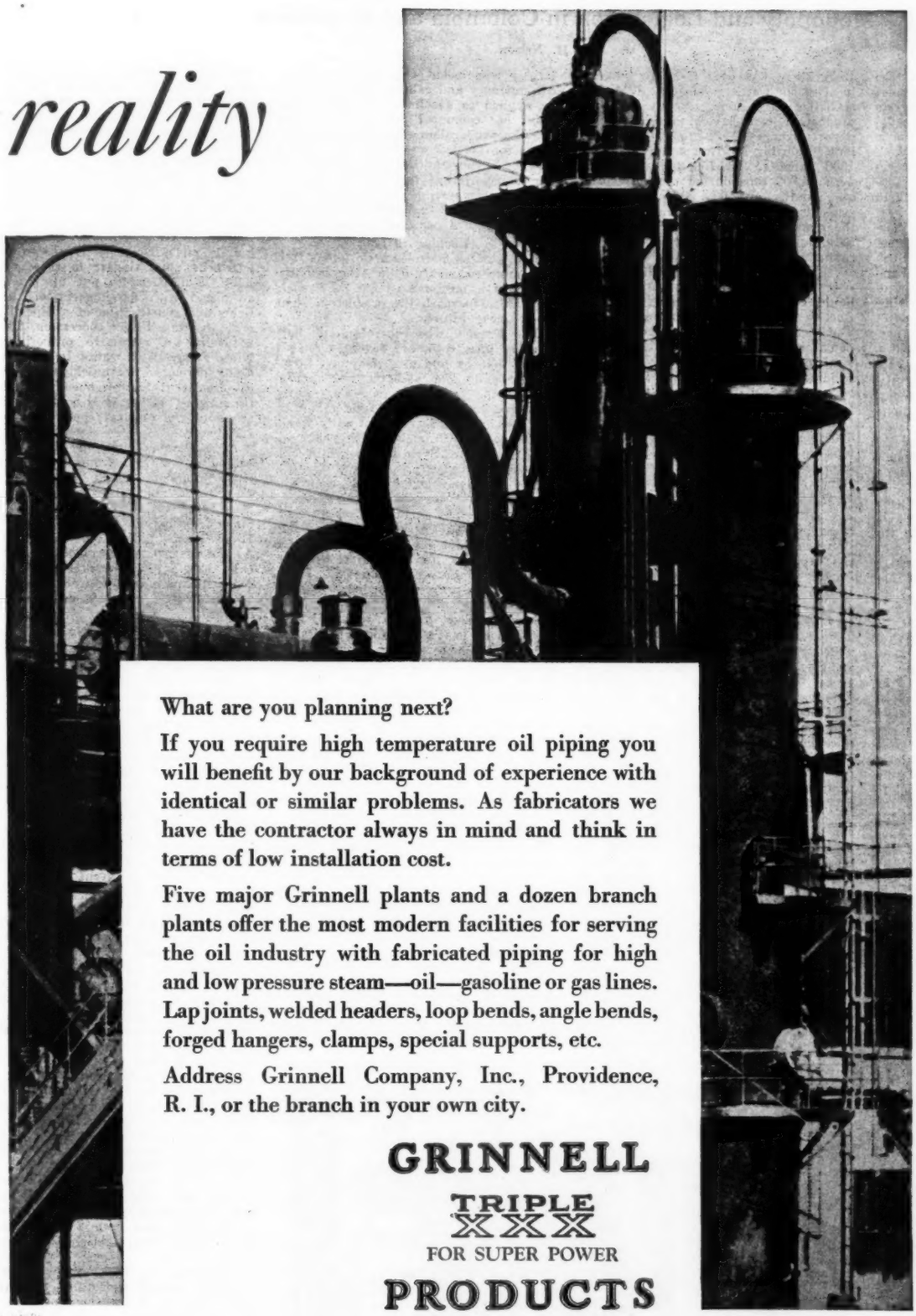
The correction of this condition calls for consideration of it as a world-wide problem. Efforts have been made on two or three occasions to secure an understanding between American and foreign oil men that would end this senseless and wasteful state of affairs.

The explanations offered for past failures have never been satisfactory because they indicated that the problem was not approached from the viewpoint of the world industry as a whole but as a competitive proposition.

The conviction remains that if the leaders of the world oil industry got together around a table and talked the matter over from the broad standpoint of what was needed by them all as an industry they could reach a solution of the puzzle in short order.

Those who think it impossible were of the same mind about the possibility of getting the producers in this country to come together on curtailment. And that was a vastly more difficult project than this other where the need is so generally recognized all around.

*reality*



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**TRIPLE XXX**

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# Foreign Developments Affecting U.S. Oil

## French Insistence on Opening Iraq Field, Spanish Monopoly and Legislation in Colombia and Argentina

By John H. Nelson

Of outstanding importance in the world oil picture in that they promise to affect seriously American oil interests are the new French policy regarding domestic refining, which in turn is closely dependent on activities of the Turkish Petroleum Co. in Iraq, the continued activities of the Spanish Petroleum Monopoly and new oil legislation, notably in Colombia and Argentina.

National defense and economic independence seem to be the underlying motives of all French oil legislation. Such new legislation as has been proposed and which seems to have a fair prospect of becoming law in the near future, aims at the securing of practically all of France's oil supplies from French participation in the Turkish Petroleum Co.

In order to prevent the passage to foreign interests of control of the importation and distribution of mineral oils in France, to insure an adequate supply of such oils for emergency needs, and to bring as much as possible of the industry into the country, the French government three years ago began a policy which is now showing results. In 1928 about 60 per cent of the petroleum import and distribution business was in the hands of foreign corporations, acting through French subsidiaries or French companies in which they held a majority interest. This proportion has shown a little change since that year, believed to be due to the import license system made effective April 1, 1929, by granting authorization to 46 firms.

The licenses were issued on a quota basis, the quantities subject to importation being fixed on a ratio obtained by taking the average annual imports of each applicant over the preceding five years, plus a reasonable increase. These licenses will extend to April 1, 1932, and it is the intention to issue no others until they expire. The licensee guarantees to keep on hand a supply equal to one-fourth the annual authorized imports. Firms importing less than 300 tons a month are not required to have quota licenses.

### Imports Classified

The authorized imports per year of the 46 licensed firms amount to 2,874,400 tons; entire imports for 1928 were 2,766,143 tons. The authorized imports are divided into 1,917,200 tons of gasoline, 331,400 tons of kerosene, 204,500 tons of gas oil, and 421,300 tons of lubricating oils.

Crude petroleum entering France for refining at a customs-controlled refinery is free of duty, while all other crude is now assessed at the rate of 62.50 francs ($2.46) per 100 kilos (0.7 bbl.). Mineral oils defined as "refined and gasoline," if imported as such, are assessed at 44 francs ($1.72) per hectoliter (26.417 gallons), whereas if refined in France they pay only 35.50 francs ($1.38) a hectoliter. The advantage given domestic refined oils by this differential is equal to $0.014 a gallon. The tariff of 1928 also permits a saving of 33 francs ($1.29) per 100 kilos on lubricating oils and petroleum residues from refining in France, 77.50 francs ($3.03) per 100 kilos on oils of vaseline and paraffin refined in France, and 32.50 francs ($1.27) per 100 kilos on paraffin.

The mineral-oil refining industry was active in France on a small scale until 1903, when the finance law of that year imposed a manufacturer's tax of 1.25 francs (then $0.242) per 100 kilos, which offset the slight protection theretofore accorded the industry. The 10 refineries then operating soon ceased to produce. Since the laws of March 16 and 30, 1928, there has been a steady increase in French refinery output. While no statistics exist, an estimate of recent production can be obtained from the import figures of crude petroleum. Such imports during the first seven months of 1930 came to 264,756 tons, compared with 14,803 tons during the corresponding months of 1929. About half the crude is being received from Persia. Of the remainder Colombia contributes one-fifth, and the rest comes from various countries.

### Three Refineries Operating

It is stated at the national office of liquid combustibles that only three refineries are now producing in France. The refinery of the Pechelbronn company, in addition to taking care of the local output of 70,000 tons of crude, handles 50,000 tons of imported petroleum. The old refinery of the Anglo-Persian group at Courchelette, near Douai, increased operations from 150,000 tons last year to a rate of 200,000 tons in 1930. The refinery of the Shell interests at La Petite Couronne, near Rouen, has a current output estimated at 200,000 tons annually.

A refinery belonging to the St. Gobian chemical consortium is under construction near Marseille. It will have an initial capacity of 300,000 tons. Other refineries are planned for construction at Dunkirk, Brest, Bordeaux, and Port St. Jerome. The last-named will be the property of a large American oil company. The Compagnie Francaise des Petroles, which has been charged by the government with its oil interests in Iraq, expects to erect several refineries, in France, including one at Marseille and another between Rouen and Havre.

Actual work on the projected refineries has been delayed by the postponement in parliament of the bill establishing the status and privileges of the Compagnie Francaise des Petroles, but it is expected that this matter will be taken up during November. If decision is favorable to the government, a decree will be issued covering domestic refining operations and authorizing the issuance of import licenses for crude petroleum for a period of 20 years. Companies already in possession of licenses for refined oils and intending to erect refineries may receive the right to import enough crude to yield the amounts of refined oils which they are now licensed to purchase abroad.

There is a wide disparity between the import cost and the retail prices of petroleum products in France, for which customs duties and internal taxes are largely responsible. Converted to American currency and gallons, these expenses, as applied to gasoline and refined oils, may be computed as approximating $0.065 per gallon for import duty, $.008 for bonded warehouse tax, $0.067 for local consumption tax, $0.008 for temporary average tax, and $0.0445 for national combustible office, tax, with the addition of a gross receipts tax amounting to 2 per cent ad valorem.

### Looking to Iraq

The Turkish Petroleum Co. or as it is now more commonly called, the Iraq Petroleum Co., only one partner, the French, is anxious to reach the production stage in the near future.

The French, who control no oil supplies of their own, are eager to remedy this deficiency and are, therefore, pressing for a decision both on the delimitation of the Iraq Petroleum Co. concession and on the route to be taken by the pipe line, which they naturally would prefer to pass through the French mandate territory of Syria to debouch at Tripoli or Alexandretta.

The British, Dutch and American groups, on the other hand, are not anxious to get into production at present Further, the British interests would prefer the pipe line to pass through Trans-Jordania and Palestine and debouch at Haifa. Meanwhile the I.P.C. has requested an extension of the period fixed under the 1925 convention for selection of plots, and in addition, it is understood, has asked for modification of the clause permitting auctioning of plots outside the area ultimately chosen by the company. It is feared that if auctioning were allowed some competing group might come on the scene and take up plots adjacent to the I.P.C.'s and draw off their supplies of oil.

At this juncture the whole situation has been brought to a head by action of a syndicate known as the British Oil Development Co. (B.O.D.). This syndicate, originally British, but now international, headed by Admiral Lord Wester Wemyss, is the only important competing group in the field. In addition to the backing of several leading British industrialists, this group has recently invited an Italian group, Agenziz Generale Italiana di Petroliol (A.G.I.P.) to join them. This Italian group is a state subsidized organization.

These two groups have further admitted a German group, which is reputed to have the backing of Krupps, German United Steel Co., Gute Hoffnugshuette and Otto Wolff. They are also admitting a Swiss-French group composed of the Swiss Bankverein, Paul Girod and Jules Bloch. The capital of this syndicate will be subscribed as to 75 per cent jointly by the British and Italian groups, and the remaining 25 per cent by the German and Swiss-French groups in equal proportions.

It is understood the B.O.D. wants the "open door" in Iraq. It has got the ear of King Feisal of Iraq and has pressed him not to allow any further extension of time to Iraq Petroleum Co. in choosing its plots. Further, it asks to be allotted 24 plots similar to those of the I.P.C. and offers to put up money to go ahead with development of the oil fields and construction of a pipe line at once if granted this concession. This is naturally an attractive proposition to King Feisal, who wants to see the oil fields developed as quickly as possible in order that his revenues may benefit from royalties, but it is contrary to the terms of the original concession to the I.P.C.

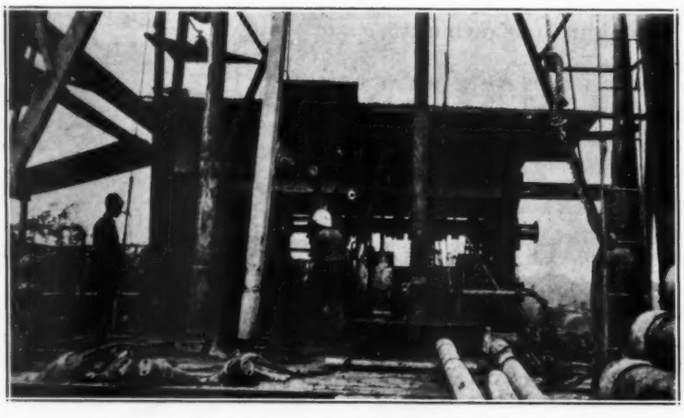
At the same time the industrialists behind the B.O.D. group would benefit from orders for plant and machinery. This work would be distributed as 50 per cent between the British and Italians, 38 per cent to the Germans and 12 per cent to the French-Swiss group As an alternative to competition the B. O.D. has, it is understood, offered to come in with Iraq Petroleum Co. and pool resources, but this offer has been declined.

### Situation in Spain

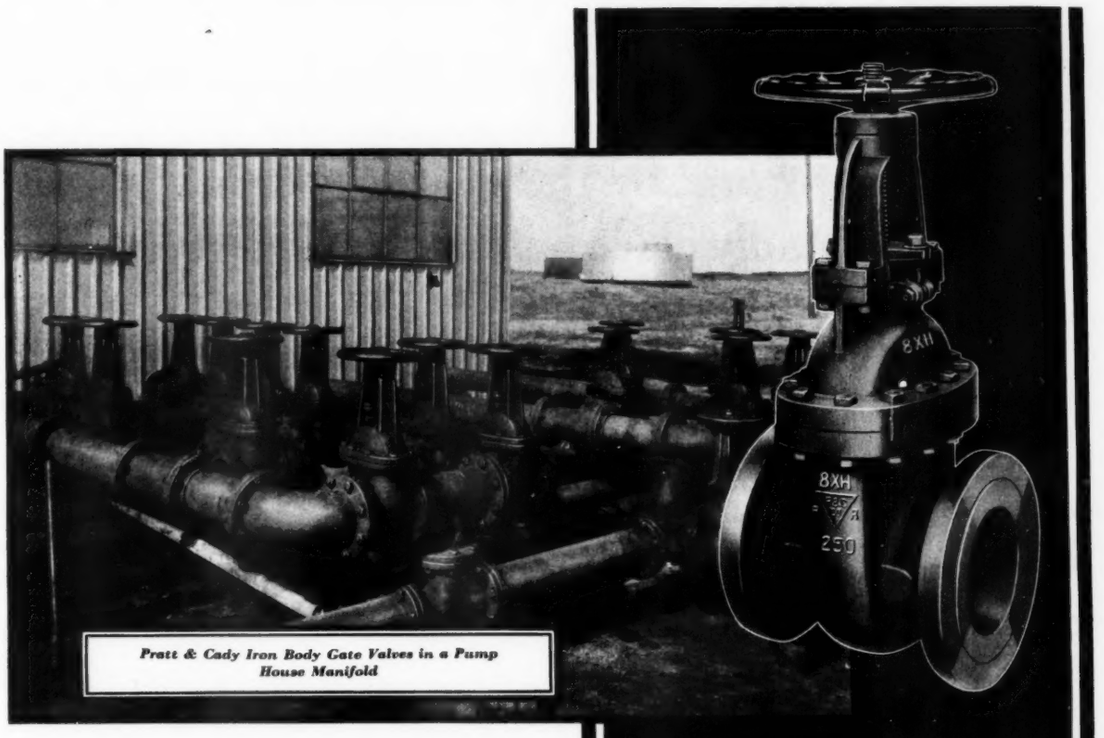
The Spanish Petroleum Monopoly has recently had a thorough internal reorganization and while making limited progress with its refinery construction program is rumored to be negotiating with Royal Dutch-Shell interests regarding the construction and operation of a large refinery in Barcelona. Sir Henri Deterding has recently made several visits but to date has failed to secure any statement from either party to the reported negotiations. Construction is progressing on the large refinery in the Canary Islands by private interests holding a contract with the Spanish monopoly for sales of output and crude contacts with a Venezuelan producing company. While the Canary Islands are Spanish territory they were not included in the law promulgating the Spanish Petroleum Monopoly.

In Colombia, possibly by the time this article appears in print, a new petroleum law is expected to pass in both houses of the legislature and receive the approval of the president. George Rublee, the attorney who assisted former Ambassador Morrow to untangle the complexities of the Mexican situation, has been retained by the Colombian government to aid in drafting the new petroleum laws. Mr. Rublee arrived in Bogota early in November. The two most troublesome features of the new bill related to the federal royalty of 12 per cent and the requirement for immediate drilling once land is leased. The international competition for oil concessions in Colombia has been further complicated by the recent activities of French interests there.

Argentina, for the past few years attempting radical legislation to further nationalization, gives some promise under the new federal regime of early consideration of more conservative measures in line with the generally accepted theories and practice of practical development of an important oil industry. The new law will have for its objective the orderly development of Argentina's oil resources to the point where excessive importations are unnecessary.



Drilling in the Burma Field, Burma, India.

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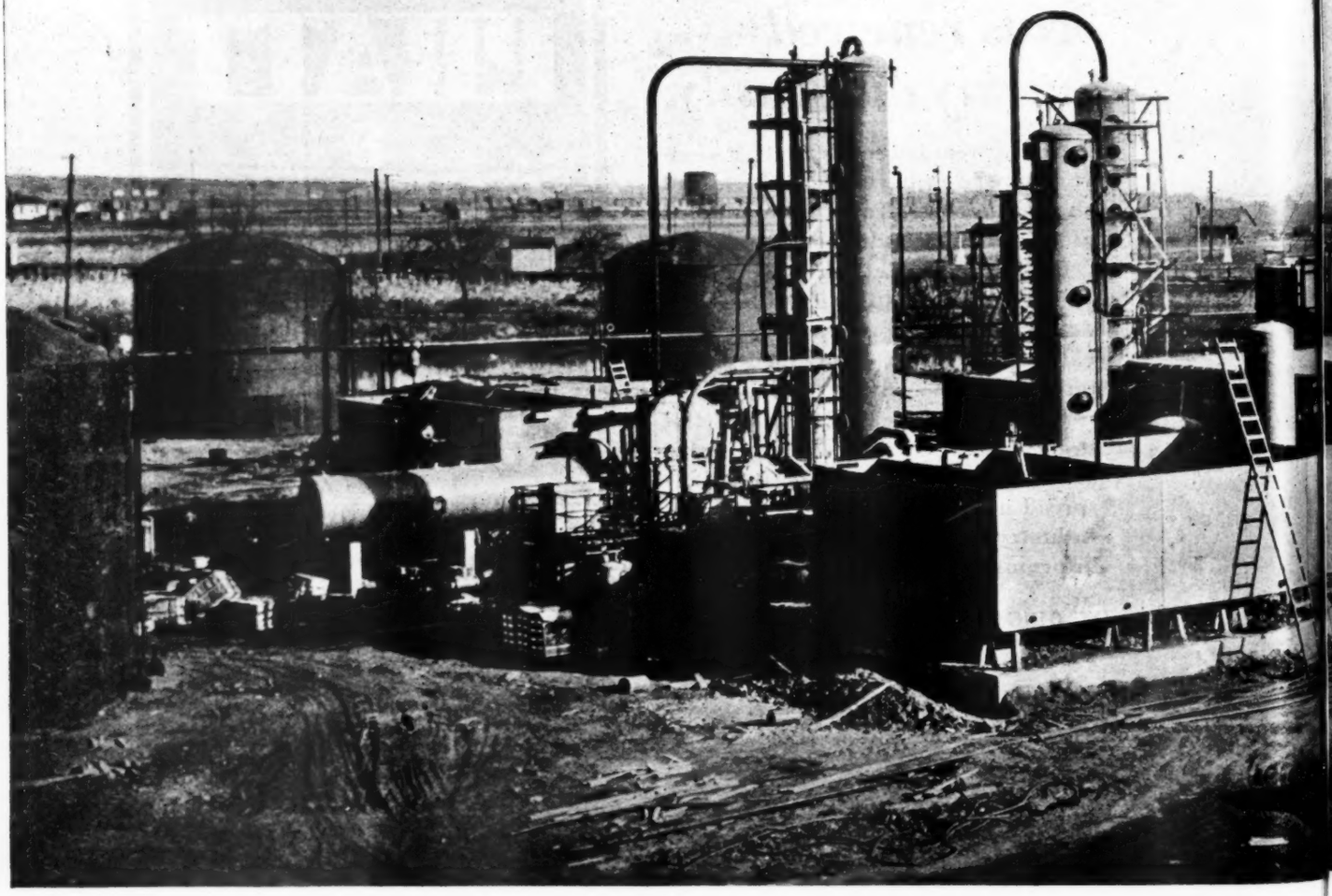
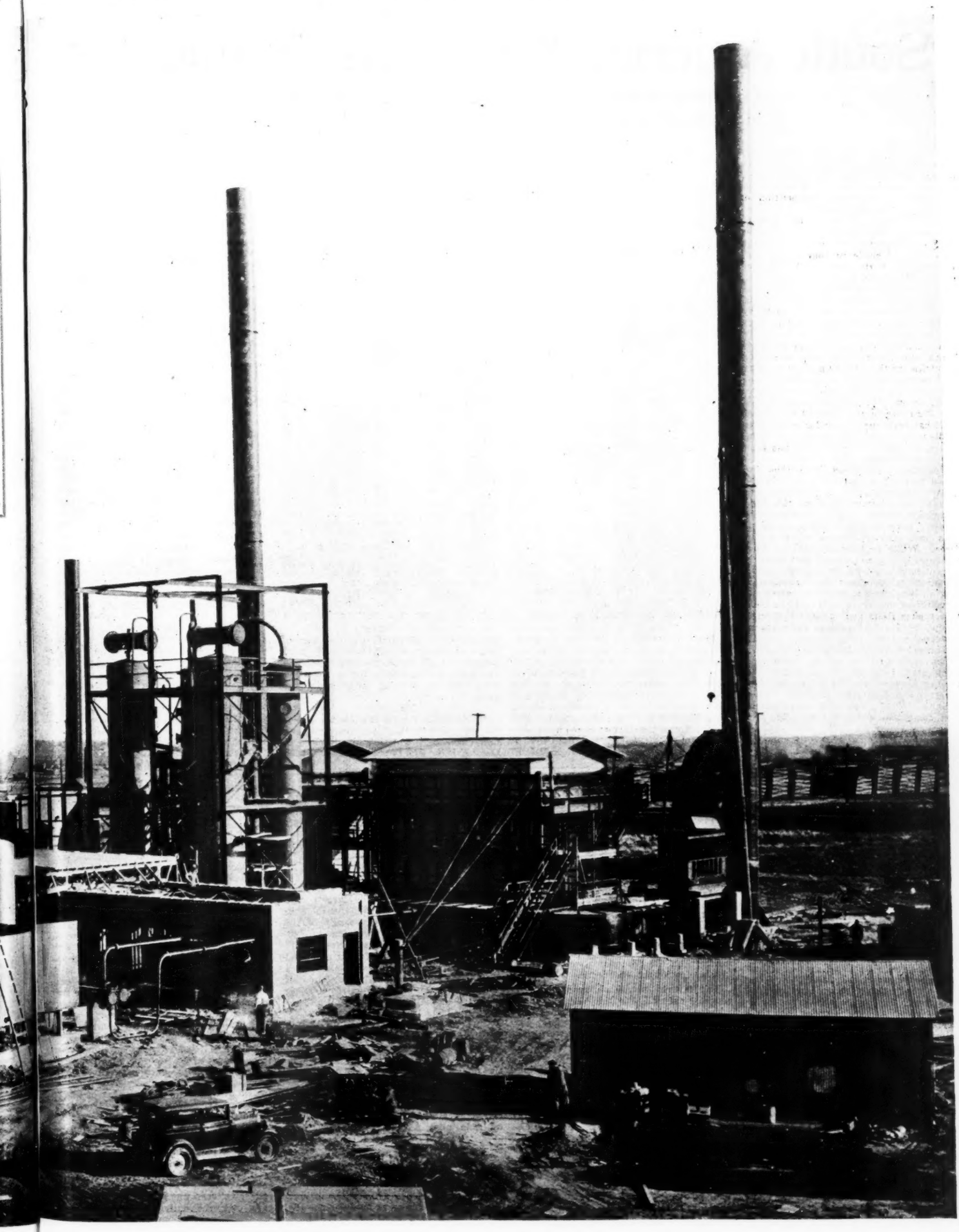




# South America Looms as Competitor

## Continued Expansion in Venezuela in Face of Curtailment in United States Important Factor in Markets of the World

South America has come prominently to the fore in the world petroleum picture during 1930, both as a disturbing factor in world overproduction of crude and because of the increasing competition of South American refined products in world markets as well. Venezuela has perhaps commanded outstanding attention during the year because of the continued growth in output of crude in that country, in the face of curtailment in the United States. Venezuela looms as the principal competitor of the American petroleum industry, among South American nations, and for this reason, as well as its heavy production, developments in that country are being closely watched here.

A summary of production in principal South and Central American producing countries for the first 10 months of 1930, with comparison with production for the years 1929 and 1928 (daily average totals), shows that production in Mexico and Peru during the first 10 months of 1930 has been running under comparable 1929 totals, while production in Venezuela, Colombia, and Trinidad has been on the up-grade.

Venezuelan producers have thus far failed to reach a complete accord in the matter of production curtailment, and pending some agreement along this line, it appears evident that production totals in that country will continue to grow, even under the restrictions which are in force. While nothing official has been announced, it is understood that there is a gentlemen's agreement among leading producers with respect to limitation of new drilling, and a common agreement of principal producers not to add to their lake tanker fleets during 1930 has acted as an effective curb against more largely increased output.

There are three American companies which rank well up among Venezuelan producers: Gulf Oil Corp., Creole Petroleum Corp. (Standard Oil Co. of New Jersey), and Lago (Standard Oil Co. of Indiana). This group, with Royal Dutch-Shell companies, comprise the leading producers in Venezuela.

Creole and Gulf have both substantially curtailed their production of Venezuelan crude oil thus far in the year; Lago has slightly increased its output over 1929 totals, and subsidiaries of the Royal Dutch-Shell group have been producing about 25 per cent in excess of 1929 comparable totals on their properties.

### Curtailment Proposal

Standard of Indiana, through Lago, its Venezuelan producing and refining subsidiary, some time ago suggested that principal producers in Venezuela get together and curtail their operations in that country. Royal Dutch-Shell, it is understood, favors the proposal, but thus far Creole and Gulf have not commented on the proposition. It is understood unofficially, however, that the latter two companies feel that in as much as they have already radically reduced their Venezuelan production, it is up to other producers to scale down their output by a corresponding amount, so that all producers can start on a so-called rationalization program "from scratch."

While there have been no official statements relative to curtailment plans for Venezuela, it would not come as a surprise if operators in that country adopted a prorating plan along the lines of the industry in this country, with production totals to be determined by regular test runs.

While crude production has been steadily gaining in Venezuela and Trinidad, refining capacity in the Caribbean area has gained in proportion, and this factor, more than the actual increase in crude output, has been the cause for serious concern among American oil men, particularly in East Coast and Gulf areas.

**DAILY AVERAGE CRUDE OIL PRODUCTION IN MEXICO AND NORTHERN SOUTH AMERICA**

(Shown in barrels)

| | | | Other northern South America | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Mexico | Venezuela | Colombia | Peru | Trinidad | Ecuador | Total | Grand total |
| 1928— | | | | | | | | |
| Average ... | 137,024 | 295,351 | 54,362 | 31,294 | 18,553 | 2,774 | 106,983 | 539,358 |
| 1929— | | | | | | | | |
| Average .... | 122,433 | 374,198 | 55,848 | 36,429 | 22,704 | 3,507 | 118,488 | 615,119 |
| 1930 week end.— | | | | | | | | |
| Jan. 4 ..... | 93,571 | 417,660 | 58,500 | 35,200 | 22,466 | 3,600 | 119,766 | 631,006 |
| Jan. 11 ..... | 90,714 | 378,700 | 56,900 | 37,100 | 23,110 | 3,600 | 120,710 | 590,124 |
| Jan. 18 ..... | 88,429 | 375,950 | 56,900 | 37,100 | 22,870 | 3,470 | 120,340 | 584,719 |
| Jan. 25 ..... | 86,714 | 371,920 | 56,900 | 37,100 | 24,352 | 3,470 | 121,822 | 580,456 |
| Feb. 1 ..... | 85,000 | 370,460 | 56,900 | 37,100 | 24,255 | 3,470 | 121,725 | 577,185 |
| Feb. 8 ..... | 84,785 | 375,100 | 56,900 | 37,100 | 24,224 | 3,470 | 121,694 | 581,579 |
| Feb. 15 ..... | 84,571 | 392,582 | 54,900 | 36,123 | 24,216 | 3,582 | 118,821 | 595,975 |
| Feb. 22 ..... | 85,714 | 389,900 | 54,900 | 36,171 | 22,932 | 3,582 | 117,585 | 593,199 |
| Mar. 1 ..... | 87,857 | 388,863 | 54,900 | 36,100 | 23,778 | 3,600 | 118,378 | 595,098 |
| Mar. 8 ..... | 82,571 | 388,600 | 54,900 | 36,100 | 22,590 | 3,600 | 117,190 | 588,361 |
| Mar. 15 ..... | 85,000 | 393,000 | 55,600 | 35,500 | 22,500 | 3,600 | 117,200 | 595,200 |
| Mar. 22 ..... | 85,000 | 390,955 | 55,600 | 35,452 | 22,993 | 3,906 | 117,951 | 593,906 |
| Mar. 29 ..... | 83,571 | 388,546 | 55,600 | 35,400 | 22,390 | 3,900 | 117,290 | 589,407 |
| Apr. 5 ..... | 85,714 | 386,050 | 55,600 | 35,400 | 23,000 | 3,900 | 117,900 | 589,664 |
| Apr. 12 ..... | 84,286 | 373,500 | 54,400 | 35,100 | 21,750 | 3,900 | 115,150 | 572,936 |
| Apr. 19 ..... | 84,714 | 364,443 | 54,400 | 35,194 | 25,274 | 3,900 | 118,768 | 567,925 |
| Apr. 26 ..... | 84,286 | 361,800 | 54,400 | 35,194 | 25,300 | 4,350 | 119,244 | 565,330 |
| May 3 ..... | 83,571 | 352,200 | 54,400 | 35,200 | 24,950 | 4,300 | 118,850 | 554,621 |
| May 10 ..... | 84,286 | 353,500 | 57,400 | 36,000 | 24,480 | 4,300 | 122,180 | 559,966 |
| May 17 ..... | 82,571 | 359,905 | 57,400 | 36,400 | 26,370 | 4,350 | 124,520 | 566,996 |
| May 24 ..... | 82,571 | 350,145 | 57,400 | 36,400 | 25,040 | 4,300 | 123,140 | 555,856 |
| May 31 ..... | 82,000 | 355,950 | 57,400 | 36,400 | 24,900 | 4,300 | 123,000 | 560,050 |
| June 7 ..... | 81,571 | 360,350 | 54,700 | 29,100 | 25,260 | 4,300 | 123,360 | 565,281 |
| June 14 ..... | 82,857 | 367,450 | 55,500 | 36,500 | 25,400 | 4,300 | 121,700 | 572,007 |
| June 21 ..... | 82,429 | 371,800 | 55,500 | 36,000 | 24,140 | 4,200 | 119,840 | 574,069 |
| June 28 ..... | 86,000 | 369,800 | 55,500 | 36,000 | 24,060 | 4,200 | 119,760 | 575,560 |
| July 5 ..... | 88,000 | 371,800 | 55,500 | 36,000 | 24,260 | 4,200 | 119,960 | 579,760 |
| July 12 ..... | 87,286 | 379,350 | 56,500 | 34,300 | 23,810 | 4,200 | 118,810 | 585,446 |
| July 19 ..... | 87,143 | 394,100 | 56,500 | 34,900 | 23,975 | 4,000 | 119,375 | 600,618 |
| July 26 ..... | 87,147 | 375,800 | 56,500 | 34,800 | 23,460 | 3,900 | 118,660 | 581,607 |
| Aug. 2 ..... | 90,000 | 374,000 | 56,500 | 34,700 | 22,640 | 4,000 | 117,840 | 581,840 |
| Aug. 9 ..... | 91,429 | 379,000 | 56,500 | 34,800 | 22,820 | 3,800 | 117,920 | 588,349 |
| Aug. 16 ..... | 84,286 | 372,200 | 56,800 | 33,100 | 23,100 | 3,900 | 116,900 | 573,386 |
| Aug. 23 ..... | 85,000 | 378,000 | 56,800 | 33,300 | 23,360 | 4,100 | 117,560 | 580,560 |
| Aug. 30 ..... | 85,000 | 367,600 | 56,800 | 33,100 | 22,750 | 4,000 | 116,650 | 569,250 |
| Sept. 6 ..... | 88,500 | 376,600 | 56,800 | 32,900 | 22,650 | 4,000 | 116,350 | 581,450 |
| Sept. 13 ..... | 87,142 | 377,000 | 56,400 | 31,600 | 24,000 | 3,800 | 115,800 | 379,942 |
| Sept. 20 ..... | 87,857 | 373,700 | 56,400 | 31,800 | 24,550 | 4,100 | 116,850 | 578,407 |
| Sept. 27 ..... | 84,286 | 367,900 | 56,400 | 31,700 | 24,950 | 4,000 | 117,050 | 569,236 |
| Oct. 4 ..... | 83,571 | 375,800 | 56,400 | 31,600 | 24,500 | 4,100 | 116,600 | 575,971 |
| Oct. 11 ..... | 85,143 | 385,700 | 56,361 | 31,618 | 24,600 | 4,100 | 116,679 | 584,522 |
| Oct. 18 ..... | 82,000 | 386,400 | 56,400 | 31,800 | 25,400 | 4,100 | 117,700 | 586,100 |
| Oct. 25 ..... | 79,286 | 387,900 | 56,400 | 31,800 | 27,250 | 3,900 | 119,350 | 586,536 |
| Nov. 1 ..... | 77,143 | 385,400 | 56,400 | 31,700 | 27,000 | 4,000 | 119,100 | 581,683 |

The withdrawal of the petroleum export group from the market, it is expected, will place the Caribbean refineries in an advantageous position with respect to export business, and growing competition with California, Gulf, and East Coast refiners is therefore looked for. The Dutch West Indies during 1930 have become the largest foreign buyers of benzol from the United States, and this development likewise is regarded in the domestic oil trade as of being of great significance with regard to what may be looked for in the near future in the way of competition for export business from the refining industry in that area.

### MEXICO

Crude production in Mexico has steadily dwindled during the current year, daily average production at the close of October being 77,143 bbls., compared with an average daily output of 122,433 bbls. for the full year 1929 and 137,024 bbls. daily for 1928.

Mexico, furthermore, has been decreasing in importance as a competitor with the United States industry. Domestic consumption is increasing in Mexico and operators there, particularly Royal Dutch-Shell interests, have shown a pronounced tendency for the integration of operations and the exploitation of home markets.

Royal Dutch-Shell, through its Mexican subsidiary, is building a pipe line from the Coast fields over the mountains to Mexico City, and will establish a refinery in the vicinity of the capital.

American, as well as foreign oil companies operating in Mexico, are co-operating with the Mexican Government in the development of plans for road building in the neighbor republic, and Mexico is expected not only to continue to dwindle in importance as a competitor with the United States petroleum industry, but to offer as well a steadily growing consumer of American refined products.

Some promising field developments have been reported in Mexico this year, but owing to the cheapness of crude from Venezuela and other producing countries, operators in Mexico are not inclined to go ahead with additional development work in the face of the heavy tax burden in Mexico and the low world levels for refined products.

### VENEZUELA

Venezuela's output at the close of October was running at an average of 385,440 bbls. per day, considerably in excess of the daily average of 374,198 bbls. for the full year 1929 and 295,351 bbls. for 1928.

Venezuela's potential has been substantially increased this year by exploratory drilling, and a number of the foreign companies are actively carrying forward prospecting operations. It is considered likely in view of the steadily falling world markets for petroleum, that Venezuelan operators will be forced into some sort of curtailment program, although unless the leading American and Dutch and British companies operating in that country achieve harmony in such a plan, it will probably prove fruitless. Venezuela is generally regarded as the cheapest country in which to produce crude of any of the world's major oil producing nations.

### ARGENTINA

The recent political upset in Argentina, it is reported, is expected to react to the advantage of foreign oil companies operating in that country, and a more rapid development of Argentine petroleum resources is looked for. The present administration in that country, it is reported, is inclined to take the oil industry out of politics as much as possible, and in consequence foreign companies with large investments in the Argentine are making plans for realizing on these capital expenditures.

Production in Argentine for 1930 will run in excess of 1929 totals, but the increase will not be important, when judged from world output totals.

Consumption is steadily increasing in Argentina, and considerable refinery construction is looked for to develop home production to take care of domestic markets. Royal Dutch-Shell has started construction of a large modern plant close to Rio de Janeiro, and a number of other refineries are under construction or projected for the Argentine.

### COLOMBIA

Production has continued a slow but steady increase in Colombia this year, although output is relatively little greater than was the case two years ago. Daily average output for Colombia at the end of October was 56,400 bbls., a slight gain over the daily average of 55,848

(Continued on Page 149)

## GOVERNMENT RESTRICTIONS CHECK OIL OPERATIONS IN ARGENTINE

Government restrictions in Argentina have continued to handicap oil operations during 1930, but some modification of the government's attitude was witnessed in late summer when permission was given Diadema Argentina de Petroleo, S. A., a subsidiary of the Royal Dutch-Shell organization, to build a refinery near Buenos Aires, construction of which started immediately, the materials having been on the ground for some months in anticipation of the grant.

The favored petroleum group in Argentina, naturally, is the Y.P.F. (Yacimientos Petroliferos Fiscales), owned and operated by the government. Other companies of major importance operating in the Argentine include Cia. Ferrocarrilera de Petroleo, S. A., an English concern; Cia. Astra-Eastern, a private Argentine company; Standard Oil Co. of New Jersey, Royal Dutch-Shell, Anglo-Persian, and Cia. de Challaco (Sol) and Cia. Rio Atuel, Ltda., both private companies controlled by Argentine capital. Production of all companies operating in Argentina, at last reports, was less than 30,000 bbls. daily, in the aggregate.

The two principal fields in Argentina are the Commodoro Rivadavia, producing crude of about 20° gravity, and the Plaza Huincul Field, producing light crude of about 32° gravity. Practically all of the production is in the former field, Plaza Huincul, at last reports, producing less than 4,000 bbls. per day.

### Large Consumer

Argentina is one of the largest consumers of refined petroleum products in South America, but as a result of the stringent regulations governing production, resulting in a virtual "freeze-out" of foreign companies, so far as new land grants are concerned, has resulted in a state of affairs whereby more than half of the country's annual requirements are imported in the form of crude oil and refined products, principally from Mexico, Venezuela and Peru. Total production in Argentina for 1929 was approximately 9,500,000 bbls., all of which was refined and consumed in that country. In addition, more than 1,000,000 metric tons of crude and refined petroleum were imported into the country last year. Definite figures on 1930 production are as yet not available, but it is reported that total output in Argentina is not in excess of 45 per cent of the country's requirements, the balance being imported.

The Argentine government has for the past six years maintained a rigid policy of exclusion of foreign oil companies, no rights to explore for oil deposits having been granted in "reserve areas" since the

(Continued on Page 147)

# Iraq Field Potential Market Disturber

## Cross-Currents Creating Apprehension Over Outcome of Development and Construction of Pipe Line. Present Situation

Iraqian oil fields, which since World War days have been regarded as one of the most important potential world oil reservoirs, have come strongly into the limelight during the past year. British, French and American companies, linked in the Iraq Petroleum Co, have been holding back development as much as possible refraining from heavy production and concentrating their activities on geological work and proving up of controlled territories for future production when world oil market conditions are more favorable.

The government of Iraq, on the other hand, has been exerting strong pressure for an early speeding up of production and construction of a pipe line from producing fields to the Mediterranean. While several tentative routes for this pipe line have been surveyed, construction has been delayed owing to the inability of England and France to agree upon a terminal for the line. French interests want the pipe line to reach the Mediterranean at a point under French control, while the British wish the line terminated at a point on deep water under British domination. While nothing definite in regard to the line has yet been announced, it is considered likely that the pipe line will have two spurs, one terminating at a French-controlled port and the other at a British-controlled point on tidewater.

Interests not previously identified with development work in Iraq have made a strong bid for a concession to operate in that country, and it was reported a short time ago that King Feisal of Iraq was favorably disposed toward the granting of a concession to a company made up of British, French and Italian interests. International politics, however, play an important part in this Far Eastern oil situation, and it is possible that political considerations may yet prove sufficiently strong to make for a continuance of the previous policy of development of Iraq oil deposits under the control of the British, French and American companies which have hitherto held control in Iraq.

### League of Nations Report

In view of the present status of the Iraq situation, a report just presented to the council of the League of Nations by the British Colonial Office on the progress made in the development of Iraq's oil resources during the past year is of general interest. The report, in part, follows:

The Khanaquin Oil Co., Ltd., which is a subsidiary of the Anglo-Persian Oil Co., operates in Iraq, in the transferred territories and also markets oil products through the whole of Iraq. Drilling operations in the Naft Khana Field of the transferred territories were suspended during the whole of the year. A sufficient number of wells were on production during the year to meet the needs of the refinery which supplies the local requirements of Iraq. Any further development in the Naft Khana Field has been postponed until a decision has been reached by the Iraq Petroleum Co. regarding the construction of a pipe line to the Mediterranean Coast for export.

Towards the end of the year preparations were made by the company to recommence the testing of the Chia Surkh Field in the northern portion of the transferred territories. Drilling operations were suspended in this field in 1924 owing to drilling difficulties, high pressures and lack of definite geological information. Further information has, however, been obtained during the past few years and it is now anticipated that this field will be developed in the near future.

The production from the Naft Khana Field at Iraq's requirements was 75,000 tons during the year, and a total royalty of Rs. 1,840,000 was paid to the Iraq government. The company has now established a very efficient distribution system throughout the whole of Iraq. Adequate storage is provided at all main centers and pump to pump distribution has been introduced on the Tigris and Euphrates Rivers by which owners of pumps used for irrigation purposes can purchase their supplies of fuel oil in bulk at their pumps, which are, in most cases, situated many miles from towns and are not served by roads or railways.

The prices at which oil products have been retailed to the public by the company have been controlled by the Iraq government under an agreement between the company and the government. Although these prices are considerably lower than those in force several years ago, the company is being pressed to make further reductions in the price of fuel oil and it is unlikely that any further concessions will be granted to oil companies operating in Iraq unless such companies are prepared to supply Iraq's requirements at lower prices than those ruling today.

During the year under review the consumption of the various oil products was as follows: Motor spirits, 4,000.000 gallons; kerosene, 6,100,000 gallons, and fuel oil, 20,400,000 gallons.

A portion of the above quantities was imported from South Persia to supply southern Iraq. At the close of the year the Khanaquin Oil Co.'s employes numbered 880, of whom 86 per cent were Iraqis.

### Progress in Negotiations

In June, 1929, with the agreement of the Iraq government, the name of the Turkish Petroleum Co., Ltd., was changed to the Iraq Petroleum Co., Ltd. The negotiations between the company and the government for the extension of the period fixed in the 1925 convention for the selection of the company's plots broke down during the summer. The company was accordingly under an obligation to choose its plots by November 28 and with this obligation it duly complied. Shortly afterwards it again approached the Iraq government for the revision of certain articles of the 1925 convention and the subsequent negotiations were still in progress at the end of the year 1929. Revisions of the nature under discussion are desirable in the general interests of Iraq as much as those of the company. The Iraq government is naturally anxious to insure the full exploitation of Iraq oil with a minimum of delay. It therefore desires that the company shall begin production and export as soon as possible. Indeed, it only agreed to enter into the present negotiations on the distinct understanding that the company would be prepared to accept a definite obligation to construct a pipe line of fixed minimum capacity within a definite period. Between 600 and 700 miles of, for the most part, arid desert separate the Iraq oil fields from the Mediterranean Coast. To lay a pipe line across this distance will require a huge financial outlet and the best technical and administrative brains procurable. The fact that preliminary undertaking to lay such a line has been both demanded by the Iraq government and given by the company goes far to show that production is the keynote of the negotiations.

### Report on Drilling

During the year under review the Iraq Petroleum Co. drilled 43,748 feet at 21 main locations; a portion of the drilling was comparatively easy, but at many locations the work was exceedingly difficult and dangerous. Since the beginning of its operations the Iraq Petroleum Co. has drilled, up to the end of the year 1929, 76,175 feet, which is more than double the minimum footage obligation imposed by the 1925 concession. The drilling has been carried out on many structures many miles apart. Such a program was forced upon the company by the obligation in the concession to select its plots within a specified period, but from a production point of view such a policy is unsound. It is hoped that, if the new negotiations can be concluded, a policy of concentration on one or more structures will be followed which will facilitate production.

The drilling undertaken by the company has been workmanlike, and only the best materials and staff have been employed. Inefficient methods or bad material, if employed on such structures as exist in Iraq, might cause irreparable damage to the deposits which they contain. Up to the end of the year under review oil in large quantities has been found in 11 wells, chiefly on the Baba Gurgur structure north of Kirkuk, but other areas are also most promising if the difficulties of high pressure, moving formation, etc., can be overcome.

The company installed a small refinery at Baba Gurgur to supply products for the company's own operations. During the year 38,000 tons of oil were produced and refined for this purpose.

The company's medical services have kept pace with the demands made by the increasing number of employes. British doctors with an adequate staff of assistants are employed and located in the various scattered areas in which the company is operating. A well-equipped hospital has been opened at field headquarters at Tuz Khurmatli, where all staff, foreign and local, are treated, and in each location dressing stations have been opened.

The general civil population, particularly in the villages far removed from government hospital and doctors, appreciate the facilities granted by the company. No less than 6,851 nonemployes of the company, chiefly tribesmen and villagers, received free medical treatment during the year.

### Proposed Pipe Line Routes

In connection with the proposed pipe line to the Mediterranean Coast a party of experts began work in August on an investigation of possible routes for the pipe line. After examining various stretches of the Syrian Coast they made an air reconnaissance (in French military machines) across the Syrian Desert, passing over Tikrit and Mosul. The party then moved from Beirut with an armored car escort, by way of Palmyra, to Abu Kemal and Ana and reconnoitered the ground between Rawa, Tikrit and Tuz Khurmatli. Returning to Haditha they continued their survey to Rutba and along the Wadi Haurin in machines made available by the Iraq Command, Royal Air Force. Thence journeying on to Qasr Azrak and Amman, a further air reconnaissance was made, and the party continued on to Jerusalem, Haifa and Beirut. The survey was completed early in December, when the leader of the party returned to America to compile his report.

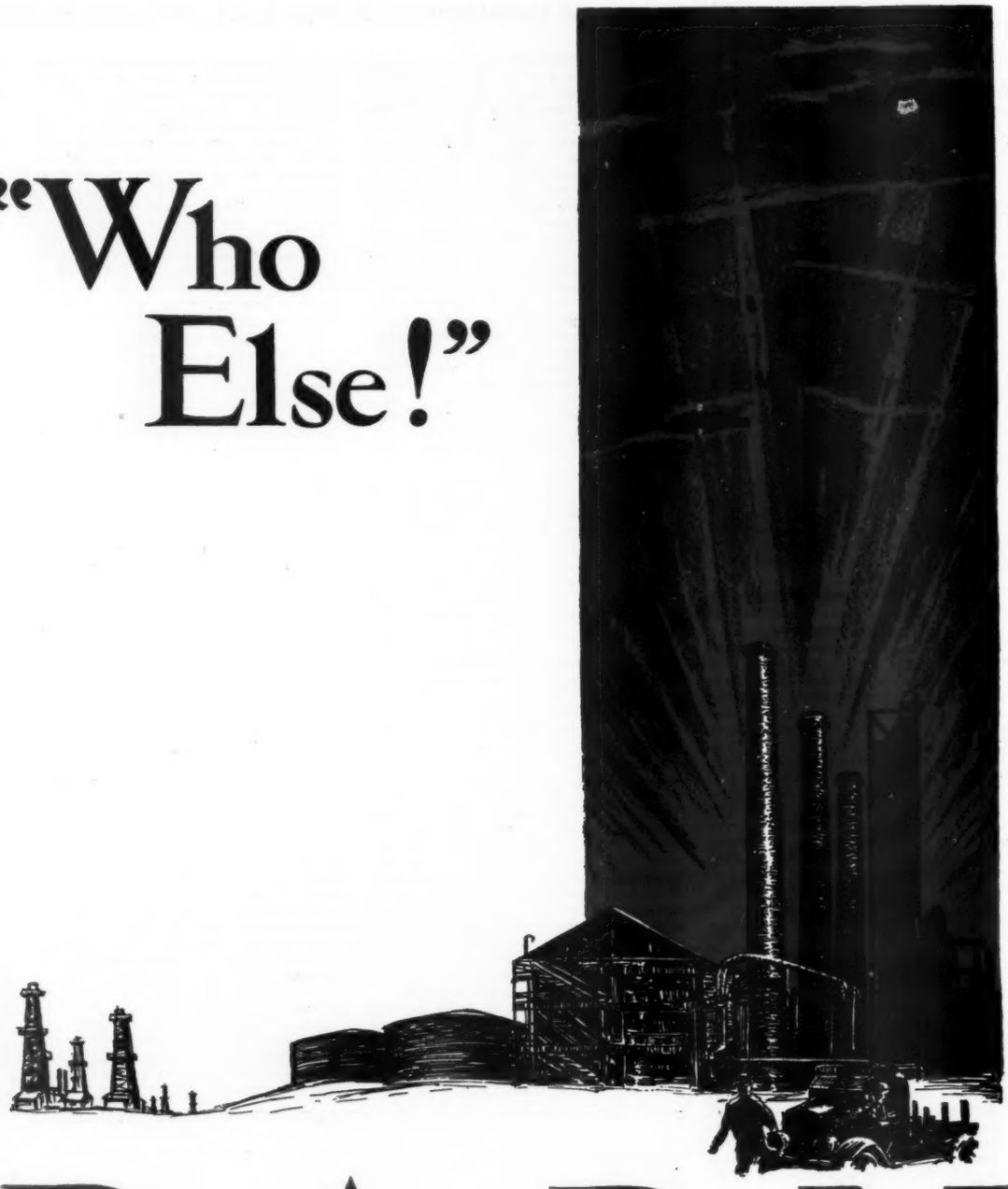
During the past year the erection at Sulaiman Beg of large workshops of the most modern type has kept pace with the growth of the company's operations in Iraq. The buildings consist of a power house, machine and erecting shop, smithy and boiler shop, carpenters' shop, power station, oxygen-making plant and a dissolved acetylene plant.

The machinery installed is all that modern engineering practice demands, and is laid out on scientific lines which enable the work to be turned out with the maximum efficiency, while at the same time providing good working conditions for the employes. Protection against accidents is one of the features of the workshops. The European staff of the workshops spend much of their time training Iraqi employes in various trades. The company's experience, up to now, is that Iraqis make good more often as blacksmiths or carpenters than in other artisan trades. But it is hoped that an apprenticeship scheme for young Iraqis, which was introduced in December, 1929, will train the right type of Iraqi youths to become competent workmen in most of the trades connected with company's activities.

During the year a good deal of attention has been paid to the housing and living conditions of daily paid labor and other noncovenanted staff employed in the fields. Hutted accommodation has been built at all locations for coolie labor, and suitable buildings have been erected in several areas for the accommodation of the families of Iraqi artisans. The canteens throughout the fields have been remodeled and reorganized. Insanitary native buildings have been pulled down and replaced by standardized canteens, and a close control is now exercised over the prices charged by the shopkeepers. Comfortable quarters have been provided for clerical staff generally throughout fields, and at Tuz Khurmatli good use has been made of the clubhouse specially allotted to the clerks for recreation and indoor games. At the close of the year the number of employes in Iraq was: Europeans 128, Americans 47, Iraqis 1,915, Persians 177, and Indians 88.

Comodoro Rivadavia Field, Argentina.

"Who Else!"



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# Rumania Seen as Competitive Force

## Expected to Be Steadily Mounting Factor in World Trade During Coming Year. Hitch in Curtailment Movement

Rumania has attained major importance this year as a competitor with the American petroleum industry for European business in refined products, and with the Rumanian industry now under the guidance of experienced world marketers, it is expected that competition from this country will represent a steadily mounting factor in the world market picture during 1931. Not only have Rumanian gasolines, kerosenes, and other refined products cut into the sale of American oils in some European markets, but Rumanian kerosene within the past two months has been offered for shipment to the United States at laid-down Atlantic Coast prices guaranteed to be competitive with quotations for Pennsylvania kerosene. Coming so close on the heels of the receipt of a shipment of Russian gasoline at Baltimore in the late fall, this development aroused considerable interest among American oil men who had hitherto been inclined to minimize the importance of growing competition afforded the American petroleum industry by other world petroleum-producing countries.

### Co-operative Movement

After several years of uneconomic operation and overproduction, the Rumanian petroleum industry was welded into a compact group during the fall months this year when companies controlled by American, British, and Dutch interests succeeded in bringing about a cohesion among both producers and refiners in Rumania, with centralized selling of exportable surpluses. Producers were organized in a conservation campaign comparing most favorably with the most successful American movements of this kind. A 24-hour open flow test of all wells was held on September 12, upon the results of which have been determined the proportion of crude which will be allowed for production during the six months' period October, 1930, to March, 1931, both inclusive. Daily average production allotments find the principal Rumanian companies lined up for production totals in the following order: Astra Romana, Steau Romana, Unirea, Concordia-Sirius, Creditul Minier, Romana-Americana, Colombia, and the I.R.D.P. Smaller companies have been taken care of in the proration allowance through a grouping of production.

With production of both crude oil and refined products thus rationalized, the industry in Rumania is now in position for further economic development, and it is expected considerable modernization of refineries, natural gas production activities, and pipe line construction will be witnessed during the coming year. Efforts are now being made to increase export trade in Rumanian refined petroleum products, more than 50 per cent of the output of Rumanian refineries annually going to foreign markets. Considerable quantities of refined products are moved to tidewater via pipe lines, it is interesting to note.

[Since this was written a representative of the Royal Dutch-Shell has reported that the Rumanian company, Astra Romana, has just abandoned restriction over the protests of its competitors.—Editor's note.]

Some of the difficulties still confronting the Rumanian industry are outlined in a report on "Rumanian Trade in Oil Products" just received by the Department of Commerce from American Consul J. Rives Childs at Bucharest. In his report, Consul Childs says, in part:

### Transportation of Oil

"The transportation of petroleum products is effected within Rumania principally by pipe lines, but also to some extent by tank cars on the state railways. At the beginning of 1929 there were in circulation about 9,000 tank cars, of which approximately 5,000 belonged to private oil companies and the remainder to the railways. The number will have to be considerably increased, despite the disadvantages of transportation by this means.

"Pipe lines used by the Rumanian oil industry have a total length of approximately 1,739 miles, including 472 miles of state property. The state owns the following four pipe lines in Rumania:

"1. From Campina and Baicoi to the Black Sea port of Constantza, with a total length of 198 miles, a diameter of 9 inches as far as Buzau and 10 inches from that point to the port. It is used for kerosene.

"2. Another from Campina and Baicoi to the Danube port of Giurgiu, with a total length of 112 miles and a diameter of 5 inches. This line is used for white products.

"3. A pipe line from Baicoi to Giurgiu, also 112 miles long and 5 inches in diameter. It is used for black products.

"4. A 50-mile pipe line from Baicoi to Bucharest with a diameter of 5 inches.

"In Constantza the state pipe lines owns about 55 tanks with a total capacity of about 1,750,000 bbls., and private tankage has a total capacity approximating 729,000 bbls. In Giurgiu the tankage amounts to about 145,800 bbls. The steadily increasing production of crude oil and derivatives has created many new tasks for the pipe lines administration, among which are the construction of a new gasoline pipe line to Constantza and the reconstruction and extension of the existing oil installations at the place. The construction of a new gasoline pipe line from Baicoi to Constantza has been projected since 1927 and is considered one of the most urgent transportation needs of the oil industry. The existing line was built before the war, when the rate of increase of oil production could not be foreseen.

### Pipe Line Administration

"The pipe lines previously were administered by the Rumanian State railways, which derived important receipts from their operation, but the income from this source declined with the reduction of rates in 1926 and continued to decrease in the subsequent years. In July, 1929, parliament voted to transfer the pipe lines to a public commercial administration. According to this law, the public commercial administration of the state pipe lines is given the legal standing of an individual having its own assets and an autonomous management under the supervision of the ministry of communications. The pipe lines will be managed by a board composed of seven members.

"The freight rates of the pipe lines must be so established, according to the new law, as to cover all administrative expenditures. Provision is to be made for the establishment of a depreciation fund to renew installations, in addition to expenditures for actual maintenance.

"Local oil interests have welcomed the commercialization of the pipe lines, as it is generally believed that under an efficient management receipts will enable the new administration to renew the inventory, undertake new construction, and improve the transportation facilities.

"In 1913 the total consumption of oil products in the domestic market amounted to approximately 5,700,000 bbls., and in 1928 it reached about 11,500,000 bbls. —an increase of more than 100 per cent. As the population of Rumania has more than doubled as a result of the war and the inclusion within its territory of Transylvania, the Banat, Bukowina, and Bessarabia—of which the first two were more advanced industrially than the old kingdom—the rate of increase in domestic consumption may hardly be regarded as satisfactory. In 1928 it amounted to about 19 gallons per capita of population.

### Consumption of Fuel Oil

"In 1913 about 4,635,360 bbls. of fuel oil were used in Rumania, or about 85 per cent of all oil products consumed. In 1928 fuel oil still remained the leading product for home consumption, with about 6,454,000 bbls., or 71 per cent of the total. The comparatively large consumption of fuel oil is explained by the rather recent development of cracking in the country, causing large stocks to remain for disposition at very low prices. The fuel oil available in the refineries is still derived largely from first distillation, a considerable part being used within the plants as fuel. In addition, the railway administration, which after the war converted many locomotives into oil burners, and the maritime and river shipping companies, are leading customers of the local refineries for this product.

"Gas oil and lubricants are second in importance for consumption by the domestic market. From 234,726 bbls. consumed in 1913, consumption increased to 707,317 bbls. in 1924. This advance was attributed to the inclusion within Rumania of many industries in Transylvania and Bukowina, as well as to a postwar industrial development in the old kingdom.

"Kerosene is the main reliance of the rural population of Rumania for lighting. In 1913 about 444,575 bbls. were used in the country, and in 1924 the consumption totaled 893,842 bbls. The rate of increase in consumption of this product is retarded by the slow development in the purchasing power of the peasants and the lack of adequate rural transportation facilities, especially to the more distant regions.

### Consumption of Gasoline

"Consumption of gasoline totaled 252,967 bbls. in 1913, and 860,369 bbls. in 1928. The rate of increase shown in these figures is not so rapid as in the case of gas oil and lubricants, but, more recently, it has been more pronounced than that of other oil products because of the rapid development of the automotive market in Rumania. The remarkable advance in the use of automotive vehicles in Rumania dates from about the beginning of 1926, when registration showed 11,725 in operation. Later figures indicated 21,832 in 1928 and 31,066 in 1929, insuring an increasing demand for gasoline.

"Even more important is the potential Rumanian market for oil fuel for agricultural machinery. The use of agricultural tractors and other machinery is progressing from year to year, but the market is far from saturation and is capable of an extended development.

"While the increase in the consumption of lubricating oils and paraffin were insignificant during the first nine months of 1929, by comparison with amounts for the corresponding period of 1928, the consumption of gasoline and gas oil declined 33,560 bbls. and 7,150 bbls., respectively. Fuel oil, with 572,760 bbls., and kero-

(Continued on Page 149)

## DEVELOPMENT OF OIL INDUSTRY IN RUMANIAN FIELDS DESCRIBED

By J. Rives Child
U. S. Consul, Bucharest

The Rumanian oil industry was founded with the financial and technical assistance of foreign interests, principally German. After the first exploration activities had been successfully completed, German financial interests, with the participation of capital from other foreign countries, established the first joint stock companies for the drilling and exploitation of oil wells in Rumania. The construction of pipe lines, refineries, tanks and other equipment for further development of the industry implied increasing investments, and in 1913 their total value was estimated at $77,200,000, representing German, British, Netherland, American, and Franco-Belgian interests.

The participation of Rumanian capital before the war was estimated at about 1 per cent of the total. By the close of 1928 this fraction had been increased to about 26 per cent of a total investment estimated at $180,000,000. It was calculated that British capital controlled about 20 per cent of this total, British-Netherland 17 per cent, Franco-Belgian 26 per cent, American 9½ per cent, and Italian a fraction of 1 per cent. The Rumanian share of the entire production is increased by government receipts of crude oil in the form of mining taxes and royalties. In 1927 these amounted to 1,015,000 bbls. for taxes and 2,247,500 as royalty, giving the Rumanian government 3,262,500 bbls. of the crude produced by foreign companies.

### Joint-Stock Companies Control Industry

More than 98 per cent of the total capital engaged in the Rumanian oil industry belongs to joint-stock companies. At the beginning of 1929, 146 such companies were engaged in the production, manufacture, and commercialization of oil products, with a total nominal paid-in capital of about $70,800,000. The most important British company so engaged is the British Phoenix Oil & Transport Co., Ltd., which is capitalized at $18,500,000 and controls the large local firms Unirea (producing and refining company) and Orion (refinery), as well as six other local oil concerns. Other British companies engaged directly or indirectly in the local oil industry are the British Steaua Romana, Ltd., the Service Petroleum Co., Ltd., Dacia Romano Petroleum, Ltd., Hamilton Oil Concession, Ltd., Amalgamated Oil Lands of Rumania, Sospiro Oilfields, Ltd., and Danube Oil & Trading Co., Ltd. The capital of these British concerns amounts to approximately $41,225,000.

Netherland capital is interested in Rumanian petroleum in conjunction with British to a total amount of about $7,638,000, owned almost exclusively by the Royal Dutch-Shell Co., of which Astra Romana is a subsidiary. French capital is present to the amount of $717,400, and Franco-Belgian capital to a total of approximately $34,104,000. Italian capital, represented in the A.G.I.P., first obtained an interest in Rumanian oil in 1926 with an investment of $2,104,000. Direct American investments are confined to one Rumanian company, with a capital stock of $3,000,000, all American owned.

### Progress Before and After the War

An examination of the yearly figures on the extent of drilling in Rumanian oil fields from their discovery up to the war shows an uninterrupted increase, with the development of the industry running parallel to the drilling activity. Military operations during the early years of the war effected a partial cessation of devel-

(Continued on Page 149)

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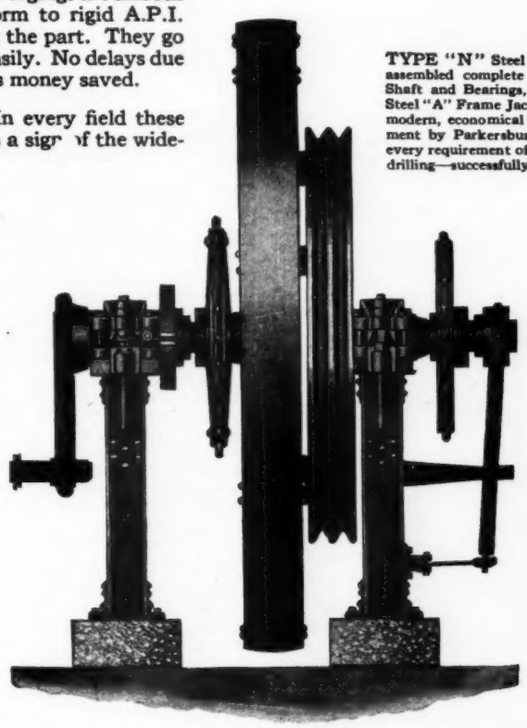

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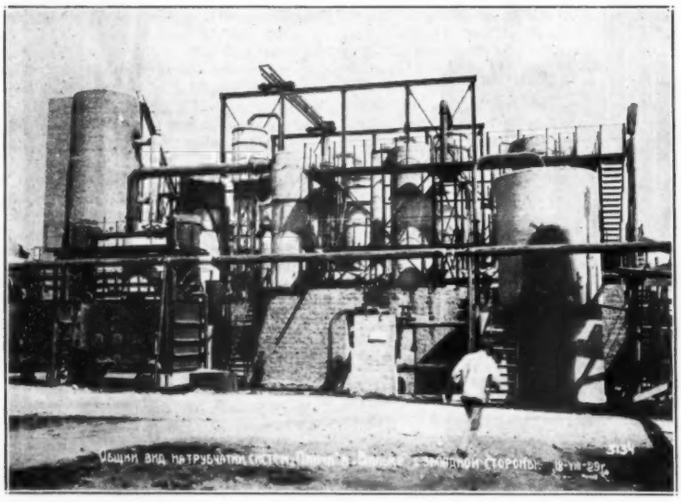
# Interest Now Increasing in Russian Gas

## Present Modern Phase of Development Dates Back to 1923 Although Product Was Used More Than 2,500 Years

**Specially Contributed**

The burning of natural gas has been associated with religious rites on the Apsheron Peninsula for many centuries, it being said that the Temple of Fire-Worshipers at Surakhani, situated near the extremity of the peninsula, was regularly frequented by devotees for some 2,500 years before the Russian government, in 1880, prohibited the further entry of the pilgrims drawn by superstition from all parts of India. Even before these pilgrims were barred, an oil refinery was built adjacent to the temple with the thought that the source of the sacred flames which awed the travelers might well serve a more practical purpose. For hundreds of years, it also is probable that the gas seeping through crevices served as fuel for cooking, a crude stove being fashioned by piling stones around the escaping gas. The peasants around Surakhani used the gas for burning lime, the gas being led through canals to heaps of limestone stacked for burning.

Despite this historical background, it was not until six or seven years ago that the technical aspects of natural gas as a propulsive agent in the production of oil and as a source of natural gasoline were fully comprehended. Before the days of the present regime, crude oil was produced primarily by bailing, with consequent loss of natural gas and the lighter gasoline fractions. It is stated that the change from bailing to closed exploitation is, to a large degree, responsible for the increasing relative recovery of gasoline from Russian crudes.



General view of distilling plant in Russia.

### Real Progress in 1923

Before nationalization, a small part of the gas from bailed wells and gushers was caught and used in steam boilers and for domestic purposes, but gas production was looked upon as an incidental item of yield and not as an important branch of the petroleum industry. In 1913 production was reported only at Baku and a total of 448,186,000 cubic feet. A notable increase was reported for 1916, but it was not until 1923 that the present modern phase of development could be said to have started. It was in that year that the first trial natural gasoline plant was started in Grozny, where the gases, with a gasoline content of 12 to 15 gallons per 1,000 cubic feet, are considered the richest in the world.

Even during the prewar period, compression with air was used extensively. The enclosed cycle, substituting gas for air, was introduced at Baku by the Azneft, with all gas passing through gasoline plants and the residue being returned to the structure, excess gas being used for fuel. The transition in production methods which has aided in the more efficient utilization of natural gas is shown in the following table:

**TRENDS IN PRODUCTION METHODS**

| Produced by— | 1924-5 Per cent | 1925-6 Per cent | 1926-7 Per cent | 1927-8 Per cent | 1928-9 Per cent |
|---|---|---|---|---|---|
| Bailing | 37.8 | 24.0 | 13.7 | 6.4 | 3.3 |
| Deep pumping | 16.4 | 28.3 | 32.7 | 33.4 | 31.9 |
| Air and gas lift | 17.5 | 16.5 | 19.5 | 18.6 | 18.8 |
| Gushers | 27.1 | 29.0 | 32.4 | 40.4 | 44.6 |
| Other methods | 2.2 | 2.2 | 1.7 | 1.2 | 1.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Aside from the gas production reported for Dergachi and Daghestan, all of the natural gas produced in the U.S.S.R. is obtained in connection with the production of oil, gas from flowing oil wells accounting for approximately 80 per cent of the total. Although the fields at Baku account for the greater portion of the total output, the increase at Grozny is the outstanding fact in the review of trends in production.

The Surakhani and Bibi-Eibat Bay areas in the Baku region contribute the larger share of the production attributed to Baku. Recent data on the gas production at Baku apportion the production as follows:

**NATURAL GAS PRODUCTION IN BAKU FIELDS**

| Field— | Per cent of Baku total |
|---|---|
| Surakhani | 56.0 |
| Bibi-Eibat Bay | 16.0 |
| Balakhani | 12.0 |
| Bibi-Eibat | 5.7 |
| Binagadi | 3.3 |
| Sabunchi | 1.6 |
| Artem Island | 1.3 |
| Chorosani | 1.08 |
| Puta | 1.02 |
| Shu'ani | 1.68 |
| Ramani | 0.4 |

The specific gravity of Baku gases is reported to vary between the limits, 0.590-0.720. The methane content of the Surakhani gases is said to range from 81.65 to 96.8 per cent. The gasoline content of the Baku gases is relatively low in comparison with the gases of Grozny, probably averaging about 1 gallon per 1,000 cubic feet. The present equipment at Baku permits the extraction of up to approximately 55,000 bbls. of natural gasoline annually but increases are expected under the five-year plan which would bring the annual production to about 180,000 bbls. Residue gas from the gasoline plants is used in gas-lift operations and excess gas is used as a fuel in industrial furnaces and for domestic cooking and heating.

It is interesting to note that the petroleum industry in the U.S.S.R. is itself the largest consumer of natural gas, the field consumption accounting for from 60 to 70 per cent of the annual recorded output of natural gas.

### Grozny Region

In the Grozny region, natural gas production in the new area has been developed to a considerable degree while production in the old area has increased at a more moderate rate. During the fiscal year 1924-5, the new Grozny area produced approximately 205,000,000 cubic feet of gas, while the old area produced approximately 729,000,000 cubic feet. In the fiscal year 1928-9, the new area produced approximately 1,650,000,000 cubic feet, while production in the old area was about 1,120,000,000 cubic feet. The increasing gas production in the new Grozny area is particularly significant in view of the different types of gas produced in the two areas. The gases of the new area contain from 30 to 40 per cent methane and from 30 to 35 per cent of heavy hydrocarbons, the specific gravity of the gas ranging from 1.0 to 1.5. The gases of the old area, on the other hand, contain approximately 75 per cent methane and from 10 to 20 per cent of heavy hydrocarbons. The gasoline content of the gases in the new area ranges from 30 to 40 per cent of the gas treated, while in the old area, the gasoline content ranges from 10 to 20 per cent. At present, it is possible to extract about 180,000 bbls. of natural gasoline annually from gases in the Grozny region, but a production is contemplated at the close of the five-year program which may reach a total of 1,350,000 bbls. yearly. The residue gases from the gasoline plants is used for industrial and domestic heating.

The natural gas from Dossor, in the Ural-Emba region, consists mainly of methane, with a small amount of heavier hydrocarbons and carbon dioxide. The specific gravity of the gases ranges from 0.54 to 0.66. The gasoline content of the Dossor gas is so small that its extraction is not feasible commercially and the gas is used only as a fuel. A small quantity of gas is being produced in the Maikop area. The specific gravity of this gas is reported as 1.03. Its methane content ranges from 59 to 71 per cent; ethane, 11 to 14 per cent; and carbon dioxide, 7 to 16 per cent. A recovery of from 500 to 700 bbls. of natural gasoline yearly from these gases is possible.

The principal production of gas, without the production of oil, is in southern Daghestan, where the gas area is said to extend a distance of about 35 miles along the western shore of the Caspian Sea. It is reported that a well was completed during 1929 which, at a depth of about 900 feet, encountered a flow of gas measured at about 5,300,000 feet daily at a pressure of slightly more than 400 pounds per square inch. Figures on the annual production for Daghestan are not yet available for the two past fiscal years, but during previous years, the production was slightly more than 1,000,000 cubic feet daily. A portion of the gas is used as fuel in a glass factory.

Natural gas production at Dergachi was at one time used as a fuel in a brick kiln and glass factory, but this use was discontinued when the daily yield fell to about 100,000 cubic feet daily. At present, the Geological Commission is investigating this area and it is reported that one of its wells yielded around 200,000 cubic feet daily. The commission is engaged in a study of other gas areas and prospective areas, where water wells and other shallow drillings have revealed the presence of gas.

**NATURAL GAS PRODUCTION IN U.S.S.R.**

(Figures in 1,000 cubic feet)

| District— | 1913 | 1916 | 1924-25 | 1925-26 | 1926-27 | 1927-28 | 1928-29 |
|---|---|---|---|---|---|---|---|
| Baku | 448,186 | 2,966,440 | 3,302,107 | 5,955,199 | 6,269,323 | 6,273,102 | 6,502,154 |
| Grozny | ..... | 565,036 | 933,969 | 1,258,795 | 1,835,520 | 2,346,454 | 2,769,489 |
| Dergachi | ..... | 197,763 | 95,350 | 38,846 | 35,315 | (*) | (*) |
| Daghestan | ..... | 187,168 | ..... | 388,462 | 383,513 | (*) | (*) |
| Kuban-Black Sea | ..... | 14,126 | ..... | ..... | 73,596 | 56,256 | 52,796 |
| Ural-Emba | ..... | ..... | ..... | 17,834 | 54,138 | 56,080 | 39,658 |
| Total | 448,186 | 3,930,533 | 4,331,426 | 7,659,136 | 8,651,410 | 8,731,892 | 9,364,097 |

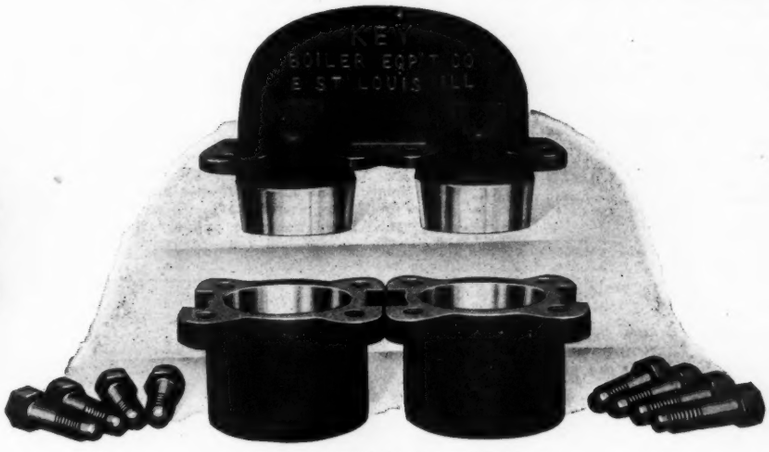
*Not available.

Surachan—the richest field of "Azneft," Russia.

# Closer Tube Spacing

## *With This New Key Return Bend*

Key Condenser Fitting. Note difference in tube spacing between this and sectional illustration.




Showing parts of Condenser Fitting.

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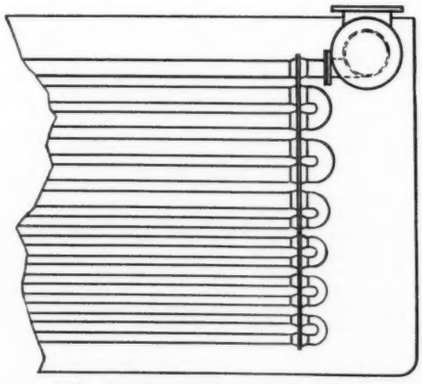
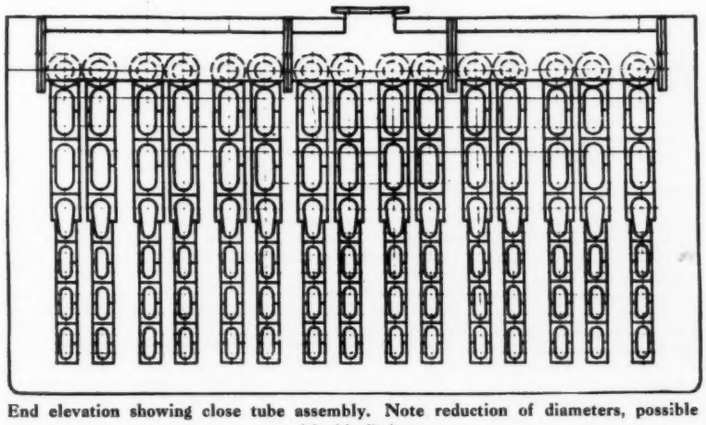
Further advantage lies in the easy replacement feature. Replacement of any one tube is possible without disturbing other parts of the assembly. The U-Bend, which is the only part subject to excessive wear, can be replaced at nominal cost.

These fittings can be supplied for all tube centers and tube sizes, and have a high factor of safety for all working pressures required on Condenser Coils. They are regularly made with forged steel tube ends and cast steel U-Bends, but they can also be made of cast iron, cast iron chrome nickel alloy, or any other metal on customer's specifications.

For complete information on these Fittings, write the nearest office listed below.



Side elevation of condenser assembly.



End elevation showing close tube assembly. Note reduction of diameters, possible with this fitting.

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# Russia's Five Year Program in Oil

## Detailed Report of Progress in Various Fields. In Three Years Output Has Been Increased Over 140 Per Cent

In connection with the five-year agricultural and industrialization plan of the Russian government a large production of oil will be necessary. Most of this will be used in the country itself, but a portion will be exported to facilitate purchases of plant and machinery.

Various state institutions have been at work since 1927 compiling the five-year oil plan and the latest figures compiled by the All Union Oil Administration are 40,300,000 tons production in 1932-33, the last of the five years. At the present moment that figure holds good, but the details have been modified owing to scarcity of funds—more oil is to be produced from old and known lands and less from new lands, so as to reduce the cost of drilling and prospecting.

Below are details of the estimated output:

| Area— | Estimated Production in 1932-33 from Old Fields Tons | New Fields Tons | Total Tons |
|---|---|---|---|
| Baku and district | 17,600,000 | 2,100,000 | 19,700,000 |
| Grozny and Maikop | 12,100,000 | 1,100,000 | 13,200,000 |
| Emba | 300,000 | 2,500,000 | 2,800,000 |
| Sakhalin | 1,000,000 | 300,000 | 1,300,000 |
| North Ural | | 2,000,000 | 2,000,000 |
| Georgia | | 600,000 | 600,000 |
| Central Asia | 25,000 | 475,000 | 500,000 |
| Dahgestan | | 200,000 | 200,000 |
| Total | 31,025,000 | 9,275,000 | 40,300,000 |

For comparison the figures of actual production in 1928-1929 and probable production in 1929-30 are given below:

| | Tons | Tons |
|---|---|---|
| Baku | 8,682,000 | 10,300,000 |
| Grozny and Maikop | 4,598,000 | 6,100,000 |
| Emba | 268,000 | 330,000 |
| Central Asia | 32,000 | 170,000 |
| Sakhalin | 15,000 | |
| Hand wells at Baku | 85,000 | |
| Total | 13,682,000 | 16,900,000 |

In three years the output has to be increased by over 140 per cent.

### Baku Field

At Baku the output from the old fields is scheduled for an increase of say 70 per cent. That is not impossible, the average increase has been 18 per cent yearly and although a small production is easier to increase than a large one, the fields are exceedingly prolific. Practically the whole of the increase is expected at Surakhany and Bibi Eibat Bay. Surakhany has shown signs of fatigue, but Bibi Eibat Bay production has increased by 40 per cent this year. Both fields have lower strata to be drilled and a portion of the Bay still to be reclaimed is good for a lot of new oil. The output from the new fields may be considered exaggerated; the data obtained to date is hardly sufficient to be able to make any estimate whatever. A new field, Nafta Chala in the Saliany Steppe, 100 miles south of Baku, where oil has been struck this year, is scheduled for immediate exploitation.

### Grozny Field

The increase at Grozny is to be 100 per cent, all from the new Grozny Fields at New Aldy and from Maikop. The old Grozny Fields are not expected to give an increased output. It will be no easy matter to double the output of the New Aldy Fields and Maikop, although both have given excellent results this year. A production of over one million tons from new fields looks exceedingly problematic, no effective drilling has been done excepting at Bragoony, where one well struck oil. Seepages exist in plenty, but more definite data is not available and prospecting is so slow that it will take very much more than three years to bring these new fields into exploitation.

### Emba Field

This promising region has been sadly neglected. No hopes are held out of an increased output at the old fields of Dousor and Makat, where the entire production is at present obtained. All expectations are centered on new fields, such as Temir, Novo-Bogatinsk and Karaton. Oil is reported to have been struck at Novo-Bogatinsk (25 miles west of the mouth of the Ural river) and at Djaman Agach in the Temir district, but it is a long way yet to commercial production. The main expectations are from Karaton, situated on the sea, but no data supporting this has been published. The old concessionaires did a good deal of prospecting at Karaton, but the results were not satisfactory.

### Sakhalin Field

In Sakhalin the Soviets are working the Okha Field and the Japanese have a concession; both are producing and the output is increasing slightly. Conditions of work are most difficult, as the island is accessible only five months in the year and inland communications are very bad. The output for eight months of 1929-30 was 31,000 tons.

### In Georgia

Numerous seepages are known in Georgia. The Shirak Fields were worked by hand 50 years ago, but the output was small, about 1,800 tons per annum. Since 1907, no production has been attempted. It is therefore unlikely that an output of 600,000 tons per annum, in fact any output whatever, will be obtained in Georgia in 1932-33.

### Central Asia

The Soviets have done very little work in Central Asia. Much more oil was produced before the war and revolution than now. Cheleken used to produce 200,000 tons per annum, Ferghana 100,000 tons. Now the whole of Central Asia produces not more than 40,000 tons. It appears that the cost of production here reaches the fantastic figure of over £4 per ton. The unlikely production of 500,000 tons by 1932-33 is estimated to cost the Soviets £2.10 per ton to produce.

### Daghestan

This district is in northeastern Caucasus. Prospecting was done here in the beginning of the century at Berekei and Kaiakent, but the results were not encouraging. Now these seepages, as well as two others, are scheduled to produce 200,000 tons in 1932-33, which appears impossible.

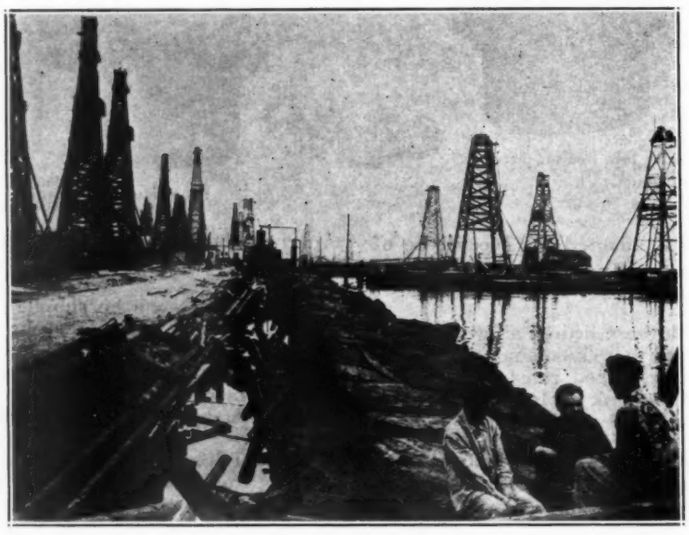
### Discovery in North Urals

An event of 1928 was the chance discovery of oil in the Perm district of the North Urals at a place called Chussovie Gorodki. Prospecting was organized and drilling commenced. Two wells are producing and 10 more are being drilled. The output for the nine months of 1929-30 was about 5,000 tons. The original estimate for 1932-33 was 4,000,000 tons since reduced to 2,000,000 tons, an exaggerated figure also. Work here is very difficult, as communications are bad and the winter is very severe.

The prospect of obtaining over 9,000,000 tons of oil from the above new fields in 1932-33 appears out of the question, but it is difficult to say whether the estimates for the old fields are attainable. In every case they are exceedingly ambitious and appear not to be dictated by prospects or possibilities, but by a desire to curry favor with the higher authorities. If the Soviets attain an output of 26,000,000 tons per annum by 1932-33, they will have every reason to be well proud of their work.

## BAKU REGION

The Baku fields are the most important oil fields in Russia. Serious development was commenced about 60 years ago when the first deep well was drilled. In 1901 the peak year of production was reached with 10,650,000 tons, when the production of Russia exceeded that of the United States. Baku at the time produced 95 per cent of all the oil in Russia. Even now the production of Baku is 60 per cent of the total output of Russia and according to the five-year plan Baku is scheduled to produce 50 per cent of the total output.



(C) P. & A. Photo.

**Oil wells at Baku, Soviet Russia.**

Baku was occupied by the Soviets in April, 1920. At first production was very low, lower even than the 1919 production, which may be estimated at 3,500,000 tons. In 1919 there were very large stocks of oil, but no export and no money. Output was restricted, but the fields were intact and workmen were available. However, normal production was not established for several years.

The following table gives the output of the Baku oil fields during the past 10 years:

| | Tons |
|---|---|
| 1920-21 | 2,500,000 |
| 1921-22 | 2,900,000 |
| 1922-23 | 3,500,000 |
| 1923-24 | 4,100,000 |
| 1924-25 | 4,700,000 |
| 1925-26 | 5,500,000 |
| 1926-27 | 6,800,000 |
| 1927-28 | 7,500,000 |
| 1928-29 | 8,700,000 |
| 1929-30 | *10,300,000 |

*Probable.

Looked at purely as an increase from 2,500,000 tons to over 10,000,000 tons in 10 years, the results are not bad.

But Baku had not had so small an output since 1887 and even in 1905, the year of the first revolution, the production was over 6,500,000 tons. Several years were wasted by the Soviets and only in 1927-28 may the production of Baku again be considered normal.

Drilling and production methods have been modernized, rotary drilling replacing the old Baku system of free fall drilling, and airlifts and compressors the antiquated bailing method of production. But this could have been effected without suspending output.

### More Gusher Oil

The production of the various fields at Baku has undergone considerable change, as shown in the table below. Considerably more gusher oil is now being produced than heretofore, namely 24 per cent as against 7 to 8 per cent before the war. At Surakhany 40 per cent of the oil produced is from flowing wells, Bibi Eibat Bay gives about 20 per cent gusher oil and the old fields of Balakhany and Sabunchi still give from 10 to 15 per cent from flowing wells from the recently tapped lower strata.

The following table shows the changes in the output of the various fields:

| Field— | Approximate annual pre-war output in tons | Per cent | Present annual output calculated on recent months production in tons | Per cent |
|---|---|---|---|---|
| Balakhany | 1,100,000 | 13.8 | 1,776,000 | 16.4 |
| Sabunchi | 3,000,000 | 37.5 | 1,164,000 | 10.7 |
| Romany | 1,300,000 | 16.2 | 912,000 | 8.5 |
| Surakhany | 500,000 | 6.3 | 4,008,000 | 37.2 |
| Kara-Chukhur | ..... | ... | 60,000 | 0.5 |
| Bibi Eibat | 1,900,000 | 23.7 | 780,000 | 7.3 |
| Bibi Eibat Bay | ..... | ... | 1,440,000 | 13.4 |
| Holy Island | 50,000 | 0.6 | 180,000 | 1.5 |
| Poota | ..... | ... | 60,000 | 0.5 |
| Binagady | 150,000 | 1.9 | 384,000 | 3.6 |
| Shubany | ..... | ... | 36,000 | 0.4 |
| Total | 8,000,000 | 100.0 | 10,800,000 | 100.0 |

Considerable increase has been obtained at Surakhany, a field which commenced producing in 1909. Bibi Eibat Bay gives a good production. The reclaiming of this bay was commenced under the old regime, but it has not yet been completed; when this has been effected a considerably larger output may be foreseen. Balakhany output has increased, thanks to the production of the lower strata. The other old fields: Sabunchi, Romany and Bibi Eibat show a considerable falling off.

### Best Producing Strata

At Balakhany and Sabunchi the best producing strata are the Kirmaku formations, which at Balakhany are expected to give a good production for some years. At the most important field of Surakhany over 60 per cent of the output is obtained from the Fifth stratum. The first gusher struck here in 1924 has already produced over 450,000 tons and in 1928-29 this Fifth stratum gave a total of 2,160,000 tons, or say 70 per cent of the total output of Surakhany. Water at Surakhany is however on the increase, the proportion this year being 26.9 per cent against 13 per cent a year before. Since the month of March the output of Surakhany has been stationary and the expected increases have not been realized, which is a matter of considerable concern to the oilfields administration. At the old Bibi Eibat fields, the amount of water is very high in the upper strata, in some cases as high as 95 per cent. Two wells recently reached a lower stratum, the Sixteenth, at a depth of 3,500 feet and gushers were struck. One is reported to have produced 10,000 tons the first day, then it corked and now is being

(Continued on Page 151)

## MANY PRODUCTS FROM BURMA CRUDE OILS

(Continued from Page 46)

treatment of oils which were untreated distillates are shown:

**No 1.—SPINDLE OIL**

| | Original sample | Extracted oil | Residual oil |
|---|---|---|---|
| Per cent | | 16 4 | 83 6 |
| Sp. gr. at 60° F. | 0 9135 | 1 0075 | 0.985 |
| Vis. at 70° F. | 229 | 413 | 204 |
| Vis. at 140° F. | 56 | 68 | 54 |

**No. 2.—MOTOR OIL**

| | | | |
|---|---|---|---|
| Per cent | | 11.1 | 88.9 |
| Sp. gr. at 60° F. | 0.946 | 1.037 | 0.937 |

Carpenter[6] in studying the composition of hydrocarbons in Burma oils reports a tendency toward the presence of branch chain constituents and this general principle runs alike through the various classes of hydrocarbons—paraffins, aromatics and naphthenes. All the chemical and physical evidence obtainable points to the preponderance, in fractions boiling below 220° C., of cyclopentane and cyclohexane derivatives.

The author concludes that "the low boiling fractions of Burma crude contain high proportions of branch chain paraffins, also naphthenes based on cyclopentane and cyclohexane rings.

"The average aromatic content under 125° C.," he goes on to say, "is about 11 or 12 per cent, or 1.9 per cent by volume of the crude, and consists of benzene and toluene. The content of aromatic hydrocarbons in fractions of kerosene from 125° to 290° C. averages about 20 per cent and is composed mainly of xylenes, cymene, pseudocumene, and mesitylene below 180°.

"Above 180° and below 215° C. the predominant aromatics are the alkylated benzenes, which possess either small alkyl groups directly attached to the nucleus, or larger groups of the branching chain type rather than of normal chains. Above 215° C. the naphthalene alkyl derivatives are the chief constituents, as shown by physical and chemical tests, but there still remains a proportion of the higher benzene homologues."

A mixture of Burma crude oils from the Yenangyaung and Singu Fields gave the following yields of products:

**CRUDE OIL A.P.I. GRAVITY 36.4**

| | Pct. of crude |
|---|---|
| Gasoline | 28.0 |
| A.P.I. Gravity 57.0 | |
| Kerosene— | |
| A.P.I. Gravity 40.0 | 19 0 |
| Heavy kerosene | 32 9 |
| Lubricating oil | 3.5 |
| Paraffin wax | 8 0 |
| Residue | 8 0 |
| Loss | 1 5 |

The crudes of Yethaya and Palanyon, produced only in relatively small quantities, are of interest in that they differ widely from the other Burmese oils. The oils of Yethaya and Palanyon are practically free from asphaltum, according to Wilson (loc. cit.), and distill to a residuum of petrolatum. They contain very little and, in some cases, no gasoline.

[6] J.I.P.T. 14, 455 (1928); J.I.P.T. 12, 518 (1926).

Analysis of representative samples are as follows:

| | Palanyon Sample 1 | Palanyon Sample 2 (normal) | Yethaya (normal) |
|---|---|---|---|
| Specific gravity | 0.875 | 0.911 | 0.930 |
| Water | | 0 2% | 0.2% |
| Distillate below 150° C. | 15½ % | 3% | nil. |
| Distillate 150° to 300° | 59% | 46% | 32% |
| Intermediate and lubricating oils | 20½ | 26% | 33% |
| Petrolatum | nil. | 25% | 35% |

The oil from the small field of Yenanma closely resembles that from Yenangyaung.

### Cracking Stock

Cracking experiments were carried out on the residue resulting from atmospheric distillation of a mixture of Yenangyaung and Singu crude oils. Analysis of the charging stock showed the following results:

**ANALYSIS OF CRACKING STOCK**
(A.S.T.M. 100 c.c. Distillation)

| | |
|---|---|
| A.P.I. gravity | 15.0 |
| Initial B.P. | 395°F. |
| Melting point | 112°F. |
| Coke % by weight | 18.0 |
| Rich in paraffin wax. | |

| Per cent distilled over | Temp. °F. |
|---|---|
| 10 | 535 |
| 20 | 615 |
| 30 | 665 |
| 40 | 663 |
| 50 | 690 |
| 60 | 695 |
| 70 | 698 |
| 80 | 700 |

Three cracking runs were made on this stock by the nonresiduum method, with the following results.

**SUMMARY OF CRACKING RESULTS**

| | | | |
|---|---|---|---|
| Charging Stock— | | | |
| Total bbls. processed | 2,957 | 2,788 | 2,960 |
| Bbls. per day on stream | 1,620 | 1,550 | 1,650 |
| A.P.I. gravity | 14.8 | 15.2 | 15.5 |
| Pressure Distillate— | | | |
| Per cent of charge | 62.3 | 63.9 | 63.2 |
| A.P.I. gravity | 53.7 | 53.1 | 54.7 |
| Coke— | | | |
| Lbs. per bbl. of charge | 134 | 136 | 132 |
| Gas, Coke and Loss— | | | |
| Per cent of charge | 37.7 | 36.1 | 36.8 |
| Gasoline (428° F. e.p.)— | | | |
| Per cent of charge | 47.3 | 48.0 | 49.9 |
| A.P.I. gravity | 57.2 | 57.0 | 57.8 |

**OPERATING CONDITIONS**

| | Pressures lbs. per sq. in. | | |
|---|---|---|---|
| Reaction chamber | 170 | 170 | 175 |
| Pressure distillate rec'vr. | 130 | 130 | 130 |
| | Temp. °F. | | |
| Transfer line | 926 | 918 | 908 |
| Vapors to dephlegmator | 829 | 822 | 826 |
| Vapors to condenser | 457 | 454 | 458 |
| Combined feed | 705 | 696 | 685 |
| Furnace above tubes | 1,432 | 1,422 | 1,440 |
| Furnace below tubes | 985 | 992 | 992 |
| Flue gas recirculator | 908 | 918 | 942 |
| Preheater air | 368 | 326 | 348 |
| Stack | 594 | 635 | 631 |

The cracking process was operated to produce gasoline, furnace or Diesel oil, gas and coke.

The commercial runs on this charging stock showed a higher coke formation than is usually found in other cracking stocks in different parts of the world.

### Chemical Treatment

The pressure distillate is refined with sulphuric acid, water and caustic soda. The distillate is thoroughly agitated with 1 per cent by volume of 95 per cent sulphuric acid. The sludge is allowed to settle and is drawn off to storage. The acid-treated distillate is washed with water and then neutralized with caustic soda.

The chemically treated pressure distillate is steam distilled to finished gasoline.

A Hempel distillation analysis of the pressure distillate follows:

| | |
|---|---|
| A.P.I. gravity | 54.4 |
| Initial B.P. | 81°F. |

| Per cent distilled over | Temp. °F. | A.P.I. gravity |
|---|---|---|
| 5 | 135 | 84 6 |
| 10 | 168 | 74.9 |
| 20 | 214 | 67 1 |
| 30 | 255 | 59.8 |
| 40 | 300 | 54.9 |
| 50 | 328 | 51 5 |
| 60 | 375 | 48 0 |
| 70 | 398 | 45.6 |
| 80 | 430 | .... |

The motor fuel produced from the pressure distillate analyzed by the A.S.T.M. 100 c.c. distillation method is as follows:

**CRACKED GASOLINE**

| | |
|---|---|
| A.P.I. gravity | 57.2 |
| Initial B.P. | 118°F. |

| Per cent distilled over | Temp °F. |
|---|---|
| 10 | 179 |
| 20 | 211 |
| 30 | 237 |
| 40 | 261 |
| 50 | 287 |
| 60 | 310 |
| 70 | 333 |
| 80 | 354 |
| 90 | 384 |
| Endpoint | 434 |

The pressure distillate, after rerunning, left a residue which is useful for gas making, for Diesel or furnace oil, or for cracking stock.

The pressure distillate analyzed as follows by the A.S.T.M. method.

| | |
|---|---|
| A.P.I. gravity | 36.5 |
| Initial B.P. | 440°F. |

| Per cent distilled over | Temp. °F. |
|---|---|
| 10 | 460 |
| 20 | 470 |
| 30 | 476 |
| 40 | 485 |
| 50 | 495 |
| 60 | 507 |
| 70 | 530 |
| 80 | 565 |
| 90 | 630 |
| Endpoint | 760 |

### Refiners in British India

"British India has a total of nine petroleum refineries[7]. The largest of these is the refinery of the Burmah Oil Co., located at Syriam, near Rangoon, with a daily capacity of 16,500 bbls. The next refinery in importance belongs to the British Burmah Petroleum Co.; this plant is located at Seikgyi and has a daily capacity of 2,500 bbls.

"The latest available details on the Indian petroleum refineries are contained in the following table:

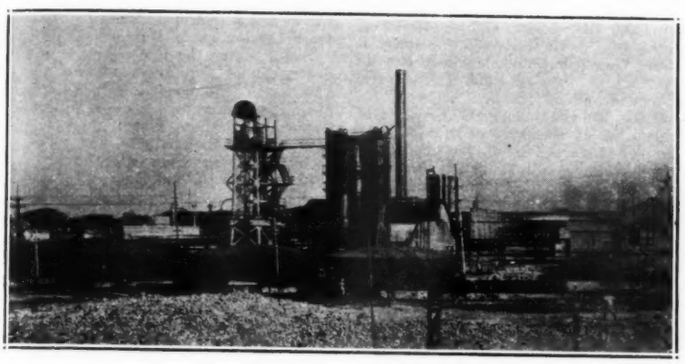
**PETROLEUM REFINERIES IN BRITISH INDIA**

| Company— | Location— | Daily capacity bbls. | Daily throughput bbls. |
|---|---|---|---|
| Assam Oil Co. | Digboi, Digboi Field | 5,000 | 2,500 |
| Attock Oil Co. | Rawalpindi, Attock Field | 1,000 | 800 |
| Burmah Oil Co. | Badarpur, Badarpur Field | (*) | 275 |
| Burmah Oil Co. | Syriam, on Rangoon River, 4 miles south of Rangoon | 16,500 | 13,500 |
| British Burmah Pet Co. | Seikgyi, on Rangoon River, 7 miles south of Rangoon | 2,500 | 1,300 |
| Indo-Burma Pet. Co. | Seikgyi, on Rangoon River, 7 miles south of Rangoon | 2,000 | 750 |
| Indo-Burma Pet. Co. | Kindat, on Irrawaddy River, 650 miles north of Rangoon | 1,000 | 470 |
| Nath Singh Oil Co., Ltd. | Nyaunghla, on Irrawaddy River, 300 miles north of Rangoon | 75 | 30 |
| United Refineries, Ltd. | Thilwa, 9 miles south of Rangoon | 500 | .... |

*Unknown.

The cracking process is in commercial operation at Syriam, and under course of construction at Digboi, Assam. Photographs are shown of the transportation, construction and installation of the pressure equipment in Burma. The process is carried out by means of the simultaneous cracking and coking operation.

[7] United States Department of Commerce, Petroleum Refineries in Foreign Countries, 1930.



*Cracking plant operating in Burma.*

## BILL FOR COMMISSION TO CONTROL GAS LINES

(Continued from Page 100)

by created and established, to be known as the Federal Gas Pipe Line Commission (hereinafter referred to as the commission) which shall be composed of three commissioners, who shall be appointed by the President, by and with the advice and consent of the Senate, one of whom shall be designated by the President as chairman and shall be the principal executive officer of the commission; provided, that after the expiration of the original term of the commissioner so designated as chairman by the President, the chairman shall be elected by the commission itself, each chairman when so elected to act as such until the expiration of his term of office. The commissioners first appointed under this section shall continue in office for terms of two, four and six years, respectively, the term of each to be designated by the President at the time of the nomination. Their successors shall be appointed each for a term of six years from the date of the expiration of the term for which his predecessor was appointed. Said commissioners shall not engage in any other business, vocation or employment. Two members of the commission shall constitute a quorum for the transaction of business. The commission shall have an official seal of which judicial notice shall be taken.

Each commissioner shall receive an annual salary of $10,000 together with necessary traveling and subsistence expense, or per diem allowance in lieu thereof, within the limitations prescribed by law, while away from the seat of Government upon official business.

The principal office of the commission shall be in the District of Columbia, where its general sessions shall be held; but whenever the convenience of the public or of the parties may be promoted, or delay or expense prevented thereby, the commission may hold special sessions in any part of the United States.

### Organization

Section 2. The commission shall have authority to appoint, specify the duties and fix the salaries of a secretary, a chief engineer, a general counsel and a chief accountant; and may, subject to the civil service laws, appoint such other officers and employes as are necessary in the execution of its franchise, and fix their salaries in accordance with the Classification Act of 1923, as amended. The commission may request the President to detail an officer, or officers, of the Corps of Engineers, or other branch of the United States Army, to serve the commission as engineer officer, or officers, or in any capacity, in field work outside the seat of Government, their duties to be prescribed by the commission; and such detail is hereby authorized. The President may also, at the request of the commission, detail, assign or transfer to the commission, engineers in any departments of the Interior or Agriculture, for field work outside the seat of Government under the direction of the commission. The commission may make such expenditures (including expenditures for rent, for law books, periodicals and books of reference, and for printing and binding) as are necessary to execute its functions. Expenditures by the commission shall be allowed and paid upon the presentation of itemized vouchers therefor, approved by the chairman of the commission, or

such other member or officer as may be authorized by the commission for that purpose.

Section 3. The commission is given full power, authority and jurisdiction to supervise and control the purchase, production, distribution, sale and transportation of natural or artificial gas by pipe line agencies.

The commission shall have power to adopt reasonable and proper rules and regulations to govern its proceedings, and to regulate the mode and manner of its investigations, audits, inspections and hearings.

**Certificate Required**

Section 4. No corporation, nor person, their lessees, trustees, or receivers shall engage in the purchase, production, distribution, sale or transportation of natural or artificial gas in interstate commerce in any state without first having obtained from the commission a certificate of public convenience and necessity authorizing such operations: Provided, that pipe line agencies in bona fide operation at the time this act becomes effective shall have 90 days from said effective date in which to file applications for certificates and shall have the right to continue in operation until their applications have been finally decided by the commission: Provided, further, that the fact that the applicant for a certificate was in bona fide operation at least one year prior to the opening date of the legislative session at which this act is passed and at the time application was made and since then has been continuously in such operation shall be considered prima facie evidence as to the public necessity of such operation.

Section 5. Any person or corporation, their lessees, trustees or receivers, desiring such certificate shall make application therefor in writing, which application shall be certified under oath and shall contain such information as the commission may order or require.

Section 6. Upon the filing of an application the commission shall fix the time and place for hearing thereon and shall require the applicant to give such notice thereof as it may require. The official hearing on any application filed more than 90 days after the effective date of this act shall be heard not less than 20 nor more than 90 days after the application is filed.

Section 7. If, after hearing upon an application, the commission shall find, from the evidence, that a certificate of public convenience and necessity is warranted, such certificate shall be issued accordingly.

The commission in issuing a certificate may authorize the operation proposed in whole or in part, and may attach to the exercise of the rights granted thereby such reasonable terms, restrictions, conditions or regulations as in its judgment the public convenience and necessity require.

**Regulation of Rates**

Section 8. Every pipe line agency governed by the provisions of this act shall be required to furnish reasonable, efficient and sufficient service and to establish just and reasonable rates or charges and to make just and reasonable rules and regulations.

Section 9. It shall be the duty of the commission, either upon complaint or upon its own initiative, to investigate all rates, charges and exactions, classifications or schedules of rates and rules and regulations, and if after full hearing and investigation the commission shall find that such rates, charges or exactions, classifications or schedules of rates, or rules and regulations, are unjust, unreasonable, unjustly discriminatory or unduly preferential, the commission shall have power to fix and order substituted therefor such rate or rates, charges, exactions, classifications or schedules of rates and such rules and regulations as shall be just and reasonable. If upon any investigation it shall be found that any regulation, measurement, practice, act or service complained of is unjust, unreasonable, unreasonably inefficient, insufficient, unduly preferential, unjustly discriminatory, or otherwise in violation of any of the provisions of this act or of the orders of this commission, or if it be found that any service is inadequate or that any reasonable service cannot be obtained, the commission shall have power to substitute therefor such other regulations, measurements, practices, service or acts, and to make such order respecting any such charges in such regulations, measurements, practices, services or acts as shall be just and reasonable.

Section 10. In all matters of procedure, orders and enforcement thereof, hearings, rehearings, and proceedings generally before the commission not provided for by this act, the commission shall be governed by the rules and regulations of the Interstate Commerce Commission set out in the Interstate Commerce Act of February 28, 1920, chapter 91, section 441, 41 Stat. 499.

Section 11. Nothing in this act shall be construed to in any way abrogate or restrict the jurisdiction of state regulatory bodies, or to take away from state regulatory bodies any supervision or control over gas pipe line agencies that they are now exercising or may have had a right to exercise before the enactment of this law, but this act shall operate only where state regulatory bodies were without jurisdiction.

## INDIVIDUAL OPERATOR ANALYZES SITUATION

(Continued from Page 41)

California the price structure is being maintained in spite of a much more difficult production situation than exists in Texas. For the Venice Field alone in California is producing 40,000 bbls. of oil, for which no price is posted and some of which is selling for as low as 35 cents per barrel. No price is posted for this oil, due to the townlot operators in this field refusing to agree on a proration program in keeping with that in force in the other California fields. In addition, a number of producers at Santa Fe Springs and Long Beach are refusing to abide by proration programs.

Here powers that be maintain the status quo in spite of the fact that 6 per cent of the State's production is being produced in violation of proration rules and sold under the market. They evidently do not think it fair to whip the whole family in order to discipline one unruly child. On the other hand, barely 1 per cent of the total production east of California is allowed to remain in distress until the market on the other 99 per cent is broken.

The rule, therefore, seems to be: For the Pacific Coast—cut down production to consumption and stabilize the price; for the rest of the country—prorate until it hurts and demoralize the price structure. California rewards proration; the rest of the industry seemingly punishes it.

All of which speaks well for the constructive, unselfish leadership in California, and the evident lack of such leadership east of California. Where is the splendid leadership that sprang to the rescue when Seminole, Winkler and Pecos simultaneosly threatened demoralization, and that has since repeatedly asserted itself as other fields of enormous potentiality have been opened up.

However, this unusual situation cannot last long; either the price structure east of the Rocky Mountains must approach that now attaining in California, or the latter will surely be dragged down by the former, and California's good leadership must pay the penalty for the lack of it elsewhere.

In extenuation of this anomalous condition, the statement is made that the price of gasoline on the Gulf Coast and eastern seaboard has declined to the point where higher prices for crude are impossible. A year ago, California gasoline was blamed for lowering the eastern seaboard gasoline market, but that cannot be the case today, in the face of the higher crude costs of the California refiners.

**Cause of Low Prices**

In my judgment, the cause for these low prices can be traced directly to the flooding of the gasoline market as result of immense imports from the Shell and Indiana refineries off the coast of Venezuela.

With that the case, I don't see how the conclusion can be escaped that the only solution for the industry is to produce only as much crude and refined products as domestic markets can consume, and the sooner we come to that conclusion, the better for all concerned. Possibly that is one of the reasons actuating President Kingsbury of the Standard of California, at the recent meeting of the American Petroleum Institute directors at Chicago, in voting for a tariff on oil.

Although it is admitted that the exports of petroleum products exceed imports in a substantial amount, it is often lost sight of that a portion of these exports peculiarly belong to the American market and would not be disturbed by a high American tariff. Many millions of barrels of oil are exported from California to the Orient and to the west coasts of North and South America, where Venezuelan and Mexican oils do not compete. In addition, considerable crude and refined products are exported from the Mid-Continent into the heart of Canada, which market would probably be largely undisturbed by direct imports to Canada from South America. Furthermore, millions of barrels of lubricating oils are exported from America, which could not be disturbed by the South American oil, due to its general lack of lubricating content.

Deducting these exports that are naturally ours for geographic and economic reasons, the net exports over imports cannot exceed 5 per cent of our domestic production. Are we not foolish, then, to let this one-twentieth of our production represented by net exports ruin the market for the nineteen-twentieths consumed in this country?

The Federal Farm Board is going up and down the land preaching the doctrine of reduction of wheat growing until American wheat can be produced and sold on a domestic price basis, thus netting the farmer larger returns for a smaller crop. Would that we had a similar body to preach the truth to our benighted minds.

**Plight of Producers**

Ninety-nine per cent of the little fellows are doing their bit and playing the game by co-operating with the various state conservation and proration programs. What else is there left for them to do?

In compliance with the repeated request and admonition of their leaders, they have prorated and prorated until actual starvation and utter ruin stare them in the face. This they have done in spite of the fact that they feel that more of the burden should have been placed upon the offending fields, the majority of which have been drilled in the face of and in spite of enormous overproduction already existing. The majority of the wells in these old fields were drilled at a time when there was a demand for the oil, and plans and commitments have been made by the owners based upon the assumption that there would continue to be a reasonable market for their product at a fair price. In the face of present conditions, they feel as grieved as the rest of the class does when the whole class is whipped because of the misdeeds of four or five bad boys.

Their feeling is aggravated by the knowledge that, despite the serious overproduction situation existing throughout the country, the past year has seen, what seems to them, the needless opening up of two major oil pools, these being the Hobbs Pool of New Mexico and the Van Pool of East Texas, with total potentials of nearly 2,000,000 bbls. daily. The takings from these two new fields at present amount to about 60,000 bbls. a day, which market otherwise could have been distributed among the older producing fields.

On top of this, and seeming to add insult to injury, steps are now being made to increase the market for Van crude an additional 25,000 bbls. a day, which can be met only by restricting just that much more the production from the old producing areas.

**Implied Obligation**

Is there not an implied obligation to keep the faith with the helpless little producer that is as sacred and as moral and binding as the duty and desire to pile up profits until regular and even special dividends can be earned and declared? In such critical times as these, is not the duty to render service transcendent to that of earning and paying dividends? Is not this especially true in the case of those interests who have recently opened up and aided in the development of enormous additional petroleum reserves; and thus still further restricted an already limited market for the output from the older producing areas?

The plight of the small producer today is so desperate that his condition is seen and recognized by a company whose executives live in Europe. Recent dispatches from London quote Dutch-Shell officials as saying that the small American producer cannot live under present prices, and that if this economic error is not immediately corrected that proration is doomed. They state that they will be glad to join in raising crude prices if their American competitors will join. What will be the answer?

The conservation laws were first enacted with the thought and intention of taking care of the loss and economic waste arising from, and to enforce equitable taking of production from, immense flush fields. For handling such situations the conservation laws and legal decisions of the states were never in better shape.

However, the present course, both as to policies of operation and prices paid, are tending to imperil the whole conservation structure. Proration of small stripper wells is pinching and hurting 50 people where restriction of flush fields hurts one, there being thousands of small producers compared with a few score of producers in big flush fields. The former are at the end of their rope. In the main they have done all that they could, have seen their production dwindle down and the price structure cut from under them, with veiled threats of further cuts to come.

**Costs Exceed Income**

Costs of production in many old settled fields, with prorated yields and lowered price, are in excess of income. If continued, abandonment must soon come of thousands of small wells, still capable of producing many millions of barrels of oil, and true conservation thus defeated.

If this sense of injustice is not righted, and that immediately, I fear that the coming sessions of the legislatures of both Texas and Oklahoma will see such an overwhelming demand upon the part of a big numerical majority of the industry for the passage of legislation removing all regulatory powers, that the states can no longer lay a necessary restraining hand upon the production of the leading flush fields. Then will come chaos and oblivion, as the ruins of the temple fall about our heads.

It lies in the power of the heads of 8 or 10 leading oil companies to remedy the present deplorable situation if they would but unite upon an unselfish, wholehearted program for saving the industry. I believe the majority honestly wish to pursue such a course, but a minority of two or three refuse to acquiesce. The success of such co-operation, in addition to helping the oil industry, the price and market of whose product are being continually depressed by the demoralized conditions existing in the industry, coal's chief rival and competitor. The setting of our house in order would revive the coal industry and provide work for many thousands of idle miners now facing want, misery and starvation.

**Appeal to President**

One of the biggest humanitarian achievements and executive accomplishments of all times was the marvelous record made by Herbert Hoover in relieving want and distress among millions of famished people in war-torn Europe. He did not hesitate, when necessary, to step on the toes of red tape, rap the

knuckles of officious authority and all but slap imperial faces. Only by such heroic conduct was the remarkable success of his work possible.

Similar treatment is today badly needed by our own great industry. If selfish interests and short-sighted viewpoints continue to refuse to listen to right and reason, may God grant our honored President the courage and inspiration to bring the divergent interests together upon a sane program to save the industry. Agony and despair today appeal with no less an eloquence than did want and misery in Europe in 1918.

I cannot but believe that if the Rockefellers, father and son, were personally conversant with all the details of the present situation and realized the awful abyss yawning before the industry, that they would be inclined to take the lead in righting these economic wrongs, and thus earn additional gratitude from an industry and nation that already owe them so much.

Upon his recent arrival at his winter home in Florida, that grand old man, John D. Rockefeller, Sr., the granddaddy of our great industry, beaming his usual good will and kindly cheer, gave to the American public, this, his message for these troublous times:

"If I am weak and you are strong,
Why then, why then,
To you the braver deeds belong,
And so again,
If you have gifts and I have none,
If I have shade, and you have sun,
'Tis yours with freer hand to give,
'Tis yours with freer grace to live,
Than I, who giftless, sunless stand,
With barren life and hand."

When would be a better time and occasion to put these beautiful thoughts into practice?

## CORRELATING PRORATION MID-CONTINENT PROGRAM

(Continued from Page 41)

with the resulting dissipation of gas energy, the physical waste of both oil and gas and the demoralization of the industry."

Wirt Franklin, president of the Independent Petroleum Association of America, read the following resolution in regard to a tariff on crude oil and refined products, which legislation Mr. Franklin has been working for during the past year and a half.

"Whereas, imports of crude petroleum and refined products are continuing to come into the markets of the United States from foreign countries and that gasoline is coming in in ever-increasing amounts having increased for the first nine months of 1930, over the same period of 1929, approximately 125 per cent, and,

"Whereas, gasoline can be and is being produced, refined and delivered into the United States at a price far below the price at which it can be produced and refined in the United States, and,

"Whereas, during the recent months there has been landed at Atlantic seaports cargoes of gasoline from Russia which promises to continue in ever-increasing amounts, owing to the favorable position in which the Russian oil industry is now in, and,

"Whereas, the apparent sincere efforts on the part of some importing companies to develop the program that would decrease the imports in proportion to the decrease of production in the United States have signally failed.

"Be it resolved: That we endorse in principle the program to obtain legislation that will impose a tariff on all imports of crude and refined products, that will place oil and refined products of the United States in position of equality with that of the foreign countries; and,

"Be it further resolved that this association pledge its support unreservedly to such program and direct its officers and members to aid and assist in presenting to the Congress of the United States, and to the President of the United States, the immediate necessity of such action as will protect the petroleum industry of the United States from complete demoralization and prevent that part of such industry not engaged in the importing of petroleum and its products from complete destruction."

The resolution was adopted. During the discussion it was brought out that Russia has shipped several million gallons of gasoline into the United States and is planning large importations of such refined products from Russia to this country, already making investigations for a site for large warehouse facilities and tank farms on the eastern seaboard.

W. N. Davis, president of the association, reminded the directors of the possibility of causing dissension in the association, the seriousness of the step in voting for a tariff, and the probable far reaching effect of such a vote, but the new development of the importation of Russian gasoline caused several of the neutral and antitariff men to vote for it.

### Proration at Crisis

Burdette Blue of the Indian Territory Illuminating Oil Co., Oklahoma, stated that proration was in its last and critical state, and unless there is a better understanding of complete facts regarding all phases of the business necessary co-operation of all producers cannot be obtained.

"All may be quiet along the Pecos, but all is not quiet along the Cimarron," Mr. Blue said, "and many producers believe that more is to be gained by breaking proration than by upholding it, for the independents see an evergrowing tendency of the big companies to buy more and more of their own oil and withdraw connections and buy less from the little fellows discriminating as they so desire." Mr. Blue further stated that the producers owe two duties to the industry, the first to co-operate generally in holding down production and the second to restrict drilling. "The purchasers also owe their duties," he said, "and uniform state laws in all oil producing states should be made to govern the industry, acting in conjunction with unitization, and moral suasion to curtail production and drilling."

Robert R. Penn, chairman of the central proration committee of Texas, followed Mr. Blue in pointing out the needs of the industry, remarking that an overall committee should be appointed to study the situation as it existed in each state, to handle the situation as between states and producing districts in the Mid-Continent producing states and the entire United States.

The committee named was the result of this suggestion. Mr. Penn said refiners and purchasers should rate crude oil into different classes, and the prices of crude run according to these classes so that producers in the various districts would have a definite method of evaluating their properties, and be more satisfied with prices given for their products. This would overcome the discrimination between oil in different pools. He said some of the purchasing companies in Texas were not abiding by "the common purchaser law" of the State, and were not connecting to properties badly in need of connections especially in the Panhandle and Wichita Falls districts.

### Plea for Panhandle

A wire from R. D. Parker, chief supervisor of the Railroad Commission, was read by Mr. Penn in which Mr. Parker stated that the Panhandle district was in a deplorable condition due to some 16,000 bbls. having no pipe line connections. There are 208 properties in the Panhandle with about 415 wells with no connections due to the Prairie Oil & Gas Co. withdrawing generally as a purchaser of crude oil. Mr. Parker sent a second wire asking if the association could not do something immediately to help this situation and David Donoghue presided over a later meeting of producers, purchasers and proration men to discuss the Panhandle after the main meeting was adjourned. In this second meeting they decided to call a special meeting of the Panhandle advisory committee, purchasers and producers in the district, at the Texas Hotel, Fort Worth, December 11. W. G. Skelly, of the Skelly Oil Co., said he would bring several other officials of the various producing companies of the district to work out plans for alleviation of the troubles of the Panhandle and bring about better conditions for producers there.

Mr. Reeser brought up the conservation of natural gas in the Mid-Continent area. All felt that definite steps should be taken to prevent millions of feet of gas escaping every day but that wrong legislation might be passed which might be against the welfare of the oil producer, therefore work of this nature should be carried on with exceptionally great care to prevent such wrong legislation. Some states, including Oklahoma and Texas already have laws dealing with the conservation of natural gas.

A resolution was adopted that "all refiners of crude oil be earnestly requested not to make any withdrawals of crude oil from storage during the present period of slack demand and at least not until after April 1, 1931, for the reason that any reduction of crude oil stocks now will be at the expense of the oil producers who are endeavoring to curtail their production within the demand; and to the further end that additional distress in the oil industry, including unemployment, may be avoided.

Capt. J. F. Lucey, of Dallas, member of President Hoover's committee on unemployment, read a resolution for proration of employment drawn by W. S. Farish, president of the Humble Oil & Refining Co., Houston, and Captain Lucey.

### Election of Officers

General officers for the year 1931 were elected as follows: William N. Davis, president of the association, re-elected for eleventh time; Wirt Franklin, Oklahoma City, vice president for Oklahoma; Tom C. Johnson, vice president for Kansas; E. A. Landreth, Fort Worth, vice president for Texas; J. R. Crawford, Shreveport, vice president for Arkansas and Louisiana; Judge J. M. Henry, Roswell, vice president for New Mexico.

### Committee on Taxation

A conference of tax representatives of oil companies operating in the Mid-Continent Field was held in Tulsa on November 29, at which time it was decided to ask the Mid-Continent Oil and Gas Association to assist in obtaining a better administration of the tax laws of the southwestern oil region states. At the Dallas meeting of the association all of the duly accredited tax representatives were appointed as a standing committee on state and local taxation of the general Mid-Continent Oil and Gas Association.

The tax committee will be organized into an executive committee of 11 members; state committees for Kansas, Oklahoma, Texas, Louisiana, Arkansas and New Mexico and other subcommittees including tank car taxation, gross production taxation, ad valorem taxation, income taxation, corporate franchise taxation, gasoline taxation, occupation and license taxes. The following executive committee has been appointed and approved by the association:

Clyde Snodgrass, Prairie Oil & Gas Co., chairman for Kansas; Alfred Wells, Carter Oil Co., chairman for Oklahoma; George W. Foster, The Texas Company, chairman for Texas; John Hammerman, Gulf Oil Co., chairman for Louisiana; C. T. Plake, Gypsy Oil Co., chairman for New Mexico; Leo Meyer, Mid-Continent Petroleum Corp., Tulsa; F. W. Alexander, Phillips Petroleum Co., Bartlesville; J. A. Lenartz, Empire Companies, Bartlesville; O. C. Cash, Stanolind Companies, Tulsa; G. E. Thompson, Tidal Oil Co., Tulsa. The chairman for Arkansas is yet to be appointed.

## PRAIRIE QUITS BUYING OIL ON DECEMBER 31

(Continued from Page 37)

Eighteen months ago the Prairie company was buying perhaps 150,000 bbls. of oil per day. It was shipping 225,000 bbls. per day to refinery customers, part of which was tendered oil. As recently as January of this year its shipments were above 200,000 bbls. per day over the Prairie Pipe Line Co.'s lines. Now the shipments are said to be about 65,000 bbls. per day. To meet the current demand the Prairie need not buy any oil. If it shipped its own production and 20,000 bbls. a day out of storage it would not exhaust its net stocks in eight years. It could sell all its production to competitors and ship only its crude stocks to refinery customers at the rate of 65,000 bbls. per day for two years and three months and not exhaust its net stocks. However, it tried out several plans of remaining in the field as a buyer. It drew out of the flush fields in order to protect the thousands of old wells the production of which it had been purchasing ever since the wells were brought in. It offered its own crude oil for sale so that it could fill its crude requirements with purchased oil. Its offers appear to have been of no avail.

### Large Producer

The Prairie Oil & Gas Co. is one of the largest producers of oil in the Mid-Continent Field. It is credited with a potential production around 100,000 bbls. per day and an actual production of about 50,000 bbls. per day of which 35,000 bbls. comes from Oklahoma; 3,500 bbls. from Kansas and about 11,250 bbls. from Texas. It has about 2,000,000 acres of undeveloped leases in Oklahoma, Kansas, Texas, Louisiana, Arkansas, Wyoming and New Mexico. Its potential production is much more than the demand made upon it by refinery customers. It has no refineries of its own, aside from that of its subsidiary the Producers & Refiners Corp. in West Tulsa with a capacity of 6,000 bbls. of crude oil per day. Its customers have always been companies with which it had no corporate connection. In Kansas Prairie pipe lines are connected to 13,035 wells which were drawn upon this year for an average of 25,000 bbls. per day. Most of these wells are very small producers and the fact that the whole number averages about 1.9 bbls. per day may be laid to the fact that the Prairie runs oil out of the larger producing fields of Greenwood, Butler, Sedgwick and other counties where the wells are from a few days to 10 years old which bring up the average production per well in the State. In Oklahoma the company's lines draw upon 22,600 wells for an average of 82,000 bbls. per day this year, an average of about 3.2 bbls. per well per day. Among the wells are those in Oklahoma City and the Greater Seminole area, which bring the average up, as it is safe to say that considerably more than 12,000 of the wells on Prairie lines will average less than 1 bbl. per day. In Texas the company ran about 18,065 bbls. per day from 2,060 wells. This is newer territory than Oklahoma and Kansas and the wells average much higher in daily production. Those on the Prairie's lines averaged about 8.8 bbls. per day. These included wells in Gray County, where the average per well is very high. The total of wells, 37,695 and the total crude runs, 125,600 bbls. per day, shows an average run per well in the three states of about 3.4 bbls. per day.

Of the total of 37,695 wells connected with Prairie pipe lines about 4,800 are owned by the Prairie Oil & Gas Co.

### Small Operators Not Cast Down

The writer talked to a number of Nowata Field producers on Monday and found them to be in a surprisingly cheerful frame of mind. They are hopeful that a way out of their difficulty will be found. The National Refining Co. and the Stanolind Pipe Line Co., one well informed man said, took one-half of the oil produced in the Nowata-Chelsea district and there is a strong feeling that one or both of these companies may be induced to arrange with the Prairie Pipe Line Co. to gather and deliver the two other pipe lines the oil now running to the Prairie.

This hopeful view of the situation does not line up with the picture presented by the two meetings of oil buyers held in Tulsa Saturday and Monday. The first meeting was held in the Prairie Oil & Gas Co. offices, having been called by State Umpire Ray M. Collins in the hope that among the numerous purchasers like Carter, Magnolia, Gypsy, Texas and other companies the oil turned back by the Prairie could be purchased and run by the Prairie's competitors. Nothing grew out of the first meeting and at the second session held in the rooms of the Mid-Continent Oil & Gas Association on Monday little progress was made towards offering relief to the owners of very small

producing wells. The difficulty seemed to be in the expense of gathering the oil. It appeared that the buyers considered the game would not be worth the candle. In a way they felt that they would be virtually paying a premium for the crude by the time it was delivered to their refineries. The meeting adjourned with no definite action taken, and there the matter stood at the close of this report. The small producers in the eastern Kansas fields, are in a worse situation than the small producers in the northern Oklahoma fields as the Prairie buys a larger proportion of eastern Kansas oil than it does of the northern Oklahoma oil.

## RIVER WELL LOCATIONS PRESENT NEW PROBLEMS

(Continued from Page 40)

for these metal piles and they form the outside lines of the dam.

The next operation is to drive, to refusal, 3"x12" fir piles 26 feet long, which penetrate the sand lying above the bed rock about 12 to 14 feet and they are spiked to "walers" made from the same size timbers and bolted, double thickness, in three horizontal sets, to the 12½-inch casing piles.

"Wale pieces" are described in Webster's dictionary as, "any piece, as a beam, timber, etc., intended to ward off dangerous impact from masonry, or the like, as the string piece of a pier where shipping is received." This explanation is given because the term is not a common one in the petroleum industry.

After these fir piles have been driven close together and spiked to the wale pieces the whole structure is braced by turnbuckle rods that extend from casing pile to casing pile across it and it is then pumped full of sand. Any water in the sand can make its escape through the cracks between the vertical fir piling but this wood will swell tight and afterward present a water tight face to the stream.

To protect against eddy currents that will be formed down stream below the derrick and would cause a great deal of damage, perhaps as much as would occur from the direct flow of water against the front of the foundation if unprotected, it is intended to build another dam on the down stream side of the derrick in the same manner as described above and also fill it with sand.

This double ended structure is about 120 feet long on the up stream end and 80 feet long on the down stream side and with the 22-foot derrick base in the center has the general appearance, especially from the air, of a "battleship" and this is the name that has been given to them in the Oklahoma City Field.

### Jetties Needed to Protect Bank

Having protected the derrick foundation from the stream it will next be necessary to protect the south bank of the stream against the current, for the "battleship" structure will split the current and direct part of it against this south bank upon which is located a number of derricks that would be in danger during flood from the washing out of the bank under them.

It therefore will be necessary to go some distance down stream below the derrick and erect not less than three jetties that will protect the river bank and direct the current out into the river channel again.

These jetties will be made much after the same design as the structure protecting the derrick foundation, and when filled with sand, and perhaps later buried in debris and sand deposited by the flood waters, will make permanent river bank protection for all time.

There are several locations to be treated in this manner, but the size of the wells justify the expenditure and the insurance against damage during floods next spring will be well worth while.

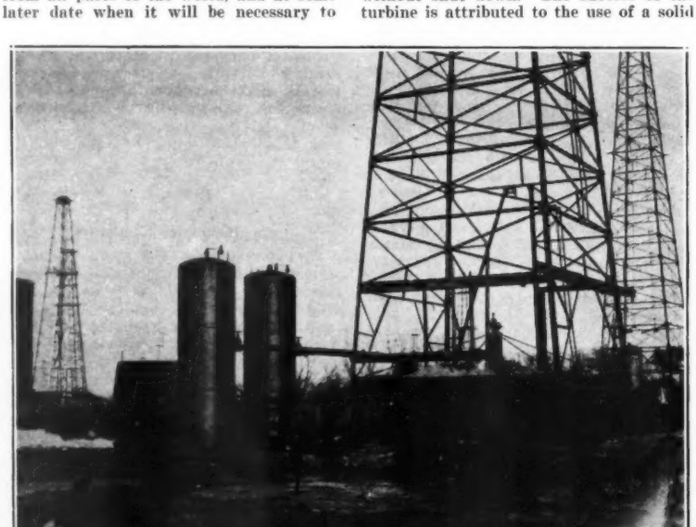
This same type of construction could be used in any river location and its development in the Oklahoma City Field may assist operators who have similar problems in other pools, for the whole design is carefully worked out to prevent undercuttings, damage from eddy currents and prevent drift wood and debris from lodging around the derrick base.

The manner in which the Phillips Petroleum Co.'s engineers have handled this and other problems created by the location of these wells in the river bed area shows quite clearly that large wells, producing considerable sand, can be successfully taken care of if good material and engineering principles are used, and while there is still a possibility of one of these wells getting out of control the chances have been reduced to a minimum.

### Other Field Problems

Oklahoma City Field has been a proving ground for a number of new ideas and the greath depth to production together with the high pressure in the formations and the method followed in prorating this field have kept the petroleum and production engineers busy, but looking back over the past two years it is very evident that the science of drilling and producing gas and oil wells has reached that high plane where it is possile to go to these great depths for oil and then safely handle the production from the wells.

Whether the costs of such deep wells are justified at this time may be questioned, but without doubt the whole industry will be greatly advanced by the work done in the Oklahoma City Pool, for it has been visited by technicians from all parts of the world, and at some later date when it will be necessary to secure the world's supply of petroleum from deeply buried formations it will be possible to look back upon this field as having pioneered in this class of work and having left for posterity a record of achievements of modern engineering.



*Well in river bottom area Oklahoma City Field protected against fire by sand fill in cellar and on derrick floor.*

It is reported that one of these wells in this field did not start to flow naturally after the rotary mud had been bailed out of the hole, and it was found that the producing formation was plugged with mud and this presented a problem.

It was decided to run a string of tubing into the hole and fit it with two or three perforated joints at the bottom and then force gas down this tubing under 1,450 pounds pressure and "wash" the formation in this way.

This was done quite successfully and after 48 hours of "washing" the oil began to flow into the hole and it made a small well. It was evident that the formation pressure was so low that the mud had penetrated into the bottom zone in the well and it would have been a small well in any event for there was not enough formation pressure to move large quantities of oil to the well.

### Gas Carries Brine and Paraffin

The natural gasoline plants in the Oklahoma City Field have been troubled with the deposition of salt and paraffin in their absorbers and condensers with a result of loss in efficiency of the units and necessitating fairly frequent cleaning.

The only explanation of this phenomena seems to be in the assumption that the salt is carried along with the high velocity gas stream in the form of water vapor and is dropped when the velocity, pressure and temperature of the gas is changed. This will also probably account for the deposit of paraffin.

While this is not a particularly troublesome problem it does give some idea of the action of gas, oil and water as the great pressures existing under ground, and the work of Dr. R. A. Millikan for the A.P.I. research committee upon the movements of these elements in sands under pressures up to 2,000 pounds will throw much light upon it.

### Gas Driven Pumps

This high pressure gas has its advantages as well as disadvantages, for it is being used to drive Terry turbines direct connected to water pumps at some of the gasoline plants.

These units are made up of a 60 horsepower Terry turbine with solid wheel, operating upon 90-pound input gas pressure and direct connected by a flexible coupling to a Worthington centrifugal pump. The speed of the unit is about 1,800 r.p.m. and the pump has a capacity of about 750 gallons per minute.

The gas after passing through the turbine is discharged into the fuel lines so that none of it is lost. The unit has been in operation for about eight months without shut down. The success of the turbine is attributed to the use of a solid wheel out of which the cups are milled, for it is stated that the blade type wheel would soon cut out under these operating conditions.

### Percentage Proration Next Problem

Hearings have been held by the Corporation Commission with a view of placing this field upon a percentage proration production basis January 1, 1931, or as soon thereafter as it is possible to decide upon all details, and this will give the engineers their next problems in production.

It is now anticipated that potential of the wells will be secured by four-hour open flows and this gauge of oil into the tanks will be multiplied by four to give 24-hour capacity of the wells and then each well will be permitted to produce a percentage of this rated potential.

This method of securing potentials is simple enough to state, but engineers familiar with the field anticipate that when some of these wells are opened to their full capacity, even for a four-hour period, sand cutting will cause damages and there are possibilities of some wild wells resulting.

If the wells have been properly finished the danger will be at a minimum but the greatest trouble is liable to occur at wells finished with inferior type fittings and not equipped with cushion heads and large oil-gas separators suitable for handling large production of oil, gas and sand, for it is just that type of well that will be opened longest to its full capacity, for unit operators would naturally be most anxious to get the highest possible rating for their wells and would be inclined to take chances with them to attain that end.

There seems to be a feeling among operators in the field that the adoption of the percentage proration plan will have many advantages, especially if the pipe lines co-operate fully with complete reports of all runs from each lease, for under this condition there will be a definite check on the amount of oil each well is entitled to and when it had produced that amount, by any method the owner decided upon, it could then be required to await an elapse of time necessary to again permit it to produce its quota of the oil from the pool.

It will give operators an opportunity to flow their wells continuously against back pressures, and perhaps through tubing, and in this way delay water encroachment in the field, and if all operators would agree upon this method of production and then put it into effect it does seem that the future life of the pool would be extended and a greater recovery from the formations be assured.

## NATURAL GASOLINE SITUATION CHANGING

(Continued from Page 99)

line fractions from the gas takes place at this pressure. For this reason all plants in the field were designed for high pressure operation.

The high pressure at which the absorption takes place gives a product from the stills which emphasizes the importance of the rectification column, particularly when a high recovery finished product is desired with a minimum loss in yields. Some unusual operating results have been obtained by manufacturers in the operation of various types of rectifying columns. All plants are modern in design incorporating the latest features as developed by the owners and the manufacturers of natural gasoline plant equipment with special emphasis placed on the design and operation of the fractionation unit so as to assure that the specifications of the buyers will be met and at the same time avoid excessive losses.

How well this is accomplished is apparent from a study of the fractional analysis of the gas and the finished gasoline. A representative sample of finished gasoline of one manufacturer showed a recovery of 96 with a 22-pound vapor pressure. This product was practically propane free with 3 per cent iso-butane. The normal butane represented 22 per cent and the remainder pentane and heavier.

The product of one of the other plants showed approximately the same percentage of normal butane and different percentages for the heavier fractions. In general, due to the absorption by the crude oil, the percentages of the hydrocarbons heavier than hexane in the finished gasoline are less than those found in the southern California gasolines. The significance attached to specifications has tended to emphasize the importance of complete analysis in laboratories which are equipped with the latest apparatus for fractional distillation.

### Marketing Situation

Probably the marketing situation has had as much to do with the specifications of the natural gasoline as anything else. The bulk of the gasoline is being purchased by the Standard Oil Co. of California, Union Oil Co. and The Texas Company. The Standard and Union companies have pipe lines connecting to terminals at the coast which is about 75 miles from the field. The Texas Company gasoline is run by the Union.

At the coast the gasoline is transported by boat to refineries located in the Los Angeles and San Francisco areas. Movement by boat requires a low vapor pressure and the recovery is reduced by additional stabilization at the terminals when necessary. One company recently completed a shipment of natural gasoline for export movement which had a vapor pressure of 14 and a recovery of 97½ to 98. This product was similar in distillation range to that which has been exported in large quantities from the Gulf Coast terminals during the past year.

It is understood that the major buyers

and manufacturers of natural gasoline in California expect to increase their shipments of the export grades during the coming year, this being the only outlet for the increased production which will be in excess of domestic requirements. This will include additional shipments to East Coast refiners. The vapor pressure on this material must be low due to requirements for movement through the Panama Canal.

**Six Plants**

The following companies have plants in operation in the Kettleman Hills Field: Western States Gasoline Corp., Los Nietos Producing & Refining Co., Standard Gasoline Co. (Standard Oil Co. of California), The Texas Company, and the Superior Oil Co. The Western States corporation takes the gas from the properties of the Continental Oil Co. The Los Nietos company, which is a subsidiary of the Petroleum Securities Co., operates with gas from the one well of the Pacific Western Oil Co. The Standard Gasoline Co. operates two plants with the gas from three wells of the Standard Oil Co. of Cailfornia. The Texas Company of California takes the gas from the property of the Milham Exploration Co., driller of the discovery well and the Superior company whose plant was the last to be completed receives its gas supply from a well drilled by the Superior company.

The Standard Gasoline Co. will complete a third plant this month. Each of the plants in the field have a rated capacity of from 75,000,000 to 100,000,000 feet of gas daily. The average gasoline recovery operating with 450 pounds pressure at the absorbers is 1.2 gallons per 1,000 feet. Operating with an overload, at least one plant in the field has produced as high as 160,000 gallons of natural gasoline daily.

**Future Development**

Just what the immediate future will hold in natural gasoline production, as previously indicated, is entirely dependent on the scope of the curtailment program from the producing end. Additional gasoline plants will be needed if the dozen or more wells now drilling or completed are allowed to operate. It is understood that the Union Oil Co. and the Associated Oil Co. have completed plans for the construction of plants provided the field is allowed to produce so that the gas will be available.

Under the unit operation plan, which, it is hoped will be made effective, there would be little new development in the immediate future and the present plant capacity would be able to handle the available gas. It is certain, however, that a large supply of gas will be available over a long period of time. Competent authorities who have investigated the reserves of the field from the standpoint of natural gas have estimated that the field is capable of producing 400,000,000 feet of gas daily for 75 years.

In addition to the voluntary curtailment plan, the California's state law prohibiting the wastage of natural gas may serve to retard the development of the field. The field has a large outlet for the residue gas in two natural gas lines connecting to the San Francisco territory and one line connecting to the southern California distributing system. However, the available gas from the eight wells is largely in excess of the requirements of these lines. If the constitutionality of the State's conservation law is upheld, its enforcement in Kettleman Hills and other fields would probably reverse the present overproduction outlook for natural gasoline and materially change the marketing situation.

## PETROLEUM AND THE ANTITRUST LAWS

(Continued from Page 42)

an effect on interstate commerce shipments, many feared prosecutions under the antitrust laws. This, of course, gave rise to some difficulties, but, nevertheless, that has been the method of cultailment pursued in the several states.

**Growing Need of Conservation**

When the Federal Oil Conservation Board was first appointed, the total storage stocks of petroleum products in the country amounted to 349,000,000 bbls. In 1929, five years later, when concerted conservation commenced, the total storage stocks had mounted to 634,000,000 bbls., or, in other words, they had almost doubled and were increasing in alarming daily amounts. This increase represented production in excess of demand—overproduction. The cost of carrying these storage stocks and the loss by evaporation, waste and oftentimes fire, runs into tremendous sums and, sooner or later, represents losses to the producer or consumer, or both. It is one of the wasteful methods that should be eliminated. It could all be prevented if the antitrust laws permitted the necessary agreements and co-operative efforts—agreements which would be beneficial to all and harmful to none.

Because largely of the antitrust laws and the opinion of the Attorney General heretofore referred to and which opinion, in view of the law and the decisions of the Supreme Court, was beyond criticism, curtailment did not get under way in California until November 1, 1929, and it did not become statewide until March of this year. Under voluntary agreement of the operators, production was cut back from 880,000 bbls. per day in October, 1929, to 645,000 bbls. daily in March, 1930. Production in our state had been steadily mounting and the opening of deeper measures threatened a flood of oil which, without curtailment, would have spelled disaster. As a result, instead of holding the production back to that of the previous year, which would more than have met the demands, our production for 1929 exceeded our 1928 production by more than 60,000,000 bbls. and we actually added to our storage stocks in California a total in excess of 44,000,000 bbls. At the close of 1929 we had in storage 184,002,116 bbls. of petroleum products. Most of this represented overproduction which should have remained in the ground until required to meet the demand. It will result in great waste and loss, which must be absorbed in some manner in the long run.

**Results in California**

The first year of co-operative curtailment in California produced the following results: Potential production during curtailment 358,927,419 bbls.; actual production under curtailment 206,351,618 bbls.; reserved in ground 152,575,801 bbls.

Thus there remains stored in its natural reservoir, free from losses by evaporation, fire, waste or other cause, and free of carrying cost, more than 152,000,000 bbls. of oil, subject to future production and which, at present prices, represents more than $199,000,000.

But it means more than that. Consider the effect of unrestrained production on the oil industry in our State during that period. It would have meant the collapse of the industry and immeasurable losses and suffering generally throughout the State.

Similar results have been accomplished in other oil producing states.

The full benefit derived from the co-operative plan cannot be stated. The dire results which no doubt would have obtained, without such co-operation, are beyond estimate.

In February of this year, the United States filed a suit in equity in the Federal Court at San Francisco against all the major companies and practically all of the independent companies, engaged in manufacturing gasoline in California. For some months prior the independents had been selling their surplus gasoline under a contract with a man by the name of Long. The contract expressly provided that it should cover only gasoline manufactured and sold in California. It was intended and deemed by all contracting parties to be strictly intra-state. The Government, alleging that Long was the agent for the major companies in making these purchases, claimed it was a violation of the Sherman act, because it enabled the major companies to control the gasoline shipped in interstate commerce to the Pacific Coast states, and thereby to fix the prices. A conspiracy was claimed and an injunction sought. The suit was eventually settled by consent decree, enjoining the continuation of the Long contract and the alleged conspiracy.

Now the fact is that the independents sought this contract and were contented under its operations. The price of gasoline to the public was not increased and, in fact, the independents shipped more gasoline in interstate commerce, pending the term of the contract, than they had prior thereto. No duress of any kind was practiced. Price wars which, in the long run, are damaging alike to the public, the retailer, the refiner and the producer, were averted.

Soon after the major companies discontinued purchases under the Long contract, the industry was plunged into a ruthless price war, which resulted in a loss of more than $30,000,000.

No company, major or independent, was doing business at a profit. That price war threatened the very existence of the independent refining companies, a branch of the industry representing 60,000 stockholders; an investment exceeding $100,000,000; employes numbering approximately 10,000 and an annual expenditure exceeding $150,000,000. These independent refining companies in 1929 produced a quantity of gasoline equal to 27 per cent of all the gasoline sold in the State of California.

Many of these independent companies were bled white during the price war and ever since, from time to time, have engaged in cut-throat competition in order to exchange gasoline for dollars with which to discharge indebtedness and carry on.

Many of their employes were thrown out of employment, refineries were closed down and dividends were discontinued. Dividends of some of the major companies were also discontinued. The purchasing power of the public was reduced and business in general suffered.

This is a short recital of a concrete example of the disastrous working of the federal antitrust laws.

Throughout the eastern and middle states, at the present time, a gasoline price war is being waged. In some places gasoline is being sold at service stations at a price equal to 1 or 2 cents above the state gasoline tax. This, of course, means loss all along the line. It has resulted in the reduction also of the price of crude oil in the Mid-Continent Field. No good can come of it. Even the motorist, who temporarily enjoys a low priced fuel, must eventually suffer.

But for the antitrust laws, all such disastrous and ruthless competition could be avoided under agreements which would be beneficial to producer and consumer alike.

A repeal of the antitrust laws is not required and is not advocated; but, by proper amendment, the public can be safeguarded and, at the same time, business and industry permitted to operate at a reasonable profit.

**Protective Laws of Other Nations**

Other nations safeguard industry as well as the public.

Germany has what is known as the Cartel system, which requires all contracts as to marketing, methods of fixing or maintaining prices, etc., to be in writing and subject to the supervision and control of the Cartel Court. Under that law business is protected from destructive competition and the public from exorbitant prices.

While our Sherman act is based upon the Common Law of England, the courts of that country have made a wide departure from the law as it stood in 1890, when the Sherman act was adopted. This is well illustrated by the decision in Ware V. Motor Trade Association, 3 K. B. 40 (1921); 19 A. L. R. 893. In that case an association of motor car dealers, having agreed upon a price list for cars, placed a dealer on the black list for selling at a higher price. Plaintiff claimed the conduct of the association was in restraint of trade. In the United States the plaintiff's contention would have been successful, but the Court of Appeal in England held otherwise. I quote in part from the opinion:

"I cannot come to any other conclusion upon the evidence in this case except that what the defendants did, and what is complained of in the present action, was done by them bona fide in protection of their trade interests. Under these circumstances neither such coercion or threats as were used, nor the action by the defendants in combination, render their action, in my opinion, unlawful or actionable."

In Australia, under statutory law, actions claimed to be in restraint of trade, are so declared only when they are "to the detriment of the public."

The "interests of producers, workers and consumers" must be taken into consideration.

The decision of the Privy Council of England, upon an appeal prosecuted from an Australian court, in the case of attorney general of Australia v. Adelaide SS. Co., A. C. 781 (1913); Law Journal (1914), Privy Council 84, upheld as valid an agreement of coal operators allocating output of the mines and fixing prices.

The Attorney General sought an injunction and damages.

**Lord Parker's Opinion**

Lord Parker, in the opinion, pointed out that the agreement was entered into, following a campaign of cut-throat competition, which was disastrous to the industry—conditions similar to those in the oil industry in California to which I have alluded. The Sherman law produced injury in California. The Australian law saved the industry in that country. I quote a portion of the opinion, believing that some day we will be reading similar opinions from our own courts:

"It can never, in their Lordships' opinion, be of real benefit to the consumers of coal that colliery proprietors should carry on their business at a loss, or that any profit they make should depend on the miners' wages being reduced to a minimum. Where these conditions prevail, the less remunerative collieries will be closed down, there will be great loss of capital, miners will be thrown out of employment, less coal will be produced and prices will consequently rise until it becomes possible to reopen the closed collieries or open other seams. The consumers of coal will lose in the long run if the colliery proprietors do not make fair profits or the miners do not receive fair wages. There is in this respect a solidarity of interest between all members of the public. The Crown, therefore, cannot, in their Lordships' opinion, rely on the mere intention to raise prices as proving an intention to injure the public. To prove an intention to injure the public by raising prices, the intention to charge excessive or unreasonable prices must be apparent."

**Canada's Method**

Canada has an act somewhat similar to that of Australia. There an agreement to maintain retail prices of coal was held valid. As in Australia, the agreement was entered into for the purpose of terminating a destructive price war. The following excerpt is quoted from the opinion:

"The small gain to those who happened to buy at the reduced price is more than offset by the probable failure to obtain well prepared coal and the absence of these dealers carrying their fair share of the burden of necessary reserve supplies, together with the injury they inflict upon bona fide dealers with large investments. . . . . Upon these grounds I have come to the conclusion that, in its activities in endeavoring to limit or prevent this unfair competition, it has not operated to the detriment of, or against the best interests of, the public."

Everyone, I think, will concede that the results reached in those decisions must have been beneficial. We hear of no bleeding of the consumer through exorbitant prices fixed by agreement or oppressions by monopolies, in those countries. On the contrary, we do have ample evidence of ruin and disaster in the United States, which could be avoided under proper amendments to our antitrust laws.

**Exemptions from Antitrust Laws**

Under Section 6 of the Clayton Act, labor, agricultural and horticultural organizations "instituted for the purpose of mutual help" are not to be held illegal combinations or conspiracies in restraint of trade under the antitrust laws.

The Panama Canal Act of 1913 exempts from the restrictions of the antitrust laws, railroads having an interest in competitive water lines.

The Revenue Act of September 8,

1926, prohibits the dumping in this country of imported articles at prices substantially less than their actual market value. The intention was, of course, to protect home industry from unrestricted competition through the sale of imported articles at cut-throat prices. If it is wise to ban unrestricted competition in the case of imported articles, why is it not wise to do the same thing in the case of domestic articles? Ruthless and unbusinesslike competition is no more damaging in the one case than in the other.

The Co-operative Marketing Act of July 2, 1926, extended exemptions from the antitrust laws to agriculture.

The Webb-Pomerene Act granted special privileges to exporters.

Proposed consolidations of railroads may be submitted to the Interstate Commerce Commission for approval; and

Proposed shipping rates may be submitted to the Shipping Board for approval.

Other exemptions could be listed. I refer to one other only, but point to it as a model from which an act may be fashioned for the relief of the petroleum industry.

The Capper-Volstead Act of 1922 provides, among other things, that "farmers, ranchmen, dairymen, nut or fruit growers may act together" in collectively marketing their products and "may make the necessary contracts and agreements to effect such purposes." The Secretary of Agriculture is empowered to pass upon such contracts through a hearing held under rules and regulations prescribed by him. After conferring this power, the law provides:

"If upon such hearing the Secretary of Agriculture shall be of the opinion that such association monopolizes or restrains trade in interstate or foreign commerce to such an extent that the price of any agricultural product is unduly enhanced thereby, he shall issue and cause to be served upon the association an order reciting the facts found by him directing such association to cease and desist from monopolization or restraint of trade."

**Proposed Relief for Petroleum**

There exist more cogent reasons for exemptions of the petroleum industry from the antitrust laws, than can be stated for the interests specified in the Capper-Volstead Act just cited. Agricultural and horticultural crops are constantly recurring; nut and fruit trees and grape vines produce yearly and may be replaced. Ranch and dairy herds may be renewed. But petroleum, once withdrawn from its natural reservoir, leaves a void in our petroleum supply which the ingenuity of man can never fill.

Secretary Wilbur in his first annual report stated: "The time has come when conservation of the nation's oil resources must be regarded as a national strategy."

An act should be adopted by Congress without further delay, granting exemptions from the destructive restrictions of the antitrust laws with respect to our petroleum resources, exactly as has been done in the case of agricultural and horticultural and other interests under the Capper-Volstead Act above referred to, but conferring on the Secretary of the Interior the supervisory powers over contracts.

I have confined my remarks to petroleum, but the statements made apply also to other natural resources, all of which require legislation for adequate protection.

Col. William J. Donovan, Assistant to the United States Attorney General, under the Coolidge administration, well qualified by his experience and splendid ability to speak on the subject, has suggested the establishment of an industrial court to which could be submitted plans, contracts or combinations for determination as to whether the proposed action would violate the antitrust laws. If approved, any acts done in accordance with the approval would be deemed lawful. Public utilities alone would be exempt from the jurisdiction of the Industrial Court.

These proposals, if adopted, would not mean the bringing of Government into business; nor conferring the power of establishing prices by the Government. Prices would continue to be fixed by business and would only be prohibited in cases where exorbitant, thereby affording to the public all the protection now insured by the antitrust laws, but at the same time providing the necessary protection to business and industry now woefully absent under the present status of our antitrust laws.

The California law prohibiting the waste of natural gas, just held constitutional by the Supreme Court of the State, will not of itself be sufficient to prevent the wasteful practices which are so injurious to the oil industry.

Every president of the United States from and including President Roosevelt to and including President Hoover, has suggested a modification of, or amendment to, the antitrust laws. In his message delivered to Congress last week, President Hoover, while expressly stating that he does not favor a repeal of the Sherman Act, does recommend that Congress inquire into the aspects of the economic working of the law respecting our natural resources.

The American Bar Association and many other organizations have criticized the antitrust laws.

Labor has condemned them in bitter terms.

Before these antitrust laws, industry stands hesitant; capital retreats, and the entire nation suffers. The line of demarkation between what acts are, and what acts are not, violative of the Sherman Act, is so attenuated, that dubiety necessarily displaces certainty. Ruthless and destructive competition is encouraged and co-operative effort becomes a crime. Business is ruined; industry stagnates and losses mount up into many millions of dollars.

It is high time for those interested in the industries and business and the general welfare of this country to mobilize their forces for a concerted action to bring about the needed modifications of our antitrust laws.

## PANHANDLE FIELDS

(Continued from Page 94)

No. 1 Taylor, dry and abandoned, total depth 2,662 feet.

**Palo Pinto County**

Lone Star Gas Co.'s No. 1 Belding, initial production 966,000 feet of gas from sand 4,045-58 feet, 1,500 pounds rock pressure, shot 70 quarts 4,041-48 feet, made 500,000 feet of gas before shot, total depth 4,061 feet. Texas Pacific Coal & Oil Co.'s No. 3 fee, initial production 9,000,000 feet of gas, 1,350 pounds rock pressure from 2,974-82 feet, total depth 2,996 feet.

**Runnels County**

Boyce and others' No. 1 Lange, temporarily abandoned, total depth 2,643 feet.

**Shackelford County**

Carter Development Co.'s No. 137 Nail, dry and abandoned, total depth 1,650 feet. Gilman and others' No. 1 Frasier, dry and abandoned, total depth 852 feet. H. H. Drilling Co.'s No. 1 Walker, dry and abandoned, total depth 372 feet.

### COMPLETIONS IN NORTH CENTRAL TEXAS

**Archer County**

Bridwell Oil Co.'s No. 1 F.C.S.L., oil sand 1,113-26 feet, initial production 15 bbls., total depth 1,126 feet. Bridwell Oil Co.'s No. 1 F.C.S.L., oil sand 1,126½-35 feet, initial production 12 bbls., total depth 1,135 feet. Joe Cable and others' No. 1 Scott, dry and abandoned, total depth 906 feet. Carey & Carey's No. 1 F.C.S.L., saturated lime 1,198-1,215 feet, initial production 20 bbls., total depth 1,215 feet. P. G. Cullum's No. 1 F.C.S.L., saturated lime 1,073-95 feet, initial production 25 bbls., total depth 1,095 feet. B. J. Shaw and others' No. 1 Ikard, dry and abandoned, total depth 1,160 feet.

**Clay County**

Crosby Oil Co.'s No. 2-A Myers, hole junked and abandoned, total depth 2,880 feet.

**Cooke County**

Comal Oil Co.'s No. 1 Ball, dry and abandoned, total depth 2,506 feet. A. V. Grant and others' No. 3 Dennis, dry and abandoned, total depth 1,525 feet.

**Montague County**

Conoco's No. 129 Maddox, gas sand 820-35 feet, initial production 2,500,000 feet of gas, rock pressure 55 pounds, total depth 835 feet.

**Wichita County**

King, H. Roy and others' No. 1 George, dry and abandoned, total depth 1,493 feet. R. R. Clark and others' No. 10 Bickley, oil sand 846-59 feet, initial production 40 bbls., total depth 859 feet.

**Young County**

F. Ard, Jr.'s No. 1 Jeffery, dry and abandoned, total depth 900 feet. Beavers and Pennell's No. 1 Cunningham, dry and abandoned, total depth 614 feet. Belknap Coal Co.'s No. 3 fee, oil sand 659-71 feet, initial production 160 bbls., total depth 671 feet. F. E. Butler's No. 2 Finch and others, oil sand 652-64 feet, total depth 723 feet, plugged back to 665 feet, initial production 15 bbls. F. H. E. Oil Co.'s No. 1 Finch and others, oil sand 691-705 feet, initial production 58 bbls., total depth 706 feet. F. H. E. Oil Co.'s No. 2 Finch and others, dry and abandoned, total depth 865 feet. W. H. Hammon's No. 1 Jeffery, dry and abandoned, total depth 800 feet. Jack Harris and others' No. 1 Street, dry and abandoned, total depth 550 feet. King Royalty Co. and Bullington's No. 1 Graham, oil sand 683-89 feet, initial production 60 bbls., total depth 689 feet. Kluner, Ard and Chancellor's No. 1 Belknap Cattle Co., hole junked and abandoned, total depth 733 feet. Litchfield and others' No. 1 Cullivan, dry and abandoned, total depth 620 feet. Martin & Maer's No. 2 Jeffery, dry and abandoned, total depth 850 feet. C. C. Mason's No. 1 Jones, dry and abandoned, total depth 1,152 feet. E. R. Perkins and others' No. 1 Sanford, dry and abandoned, total depth 1,003 feet. Ramsey and Dicker's No. 1 Gathright, dry and abandoned, total depth 760 feet. Roy Seitz' No. 3 Finch and others, oil sand 619-31 feet, initial production 60 bbls., total depth 634 feet. V. Swanson's No. 1 Owens, dry and abandoned, total depth 1,008 feet. Watson and Webb's No. 1 Heard, dry and abandoned, total depth 620 feet. Hamilton and others' No. 1 Mills, dry and abandoned, total depth 702 feet. Panhandle Purchasing & Refining Co.'s No. 1 Cox, initial production 10,900,000 feet of gas, with estimated 15 bbls. oil from sand 2,329-34 feet, rock pressure 900 pounds, total depth 2,334 feet. Smith and Shamblin's No. 1 Belknap Townsite, dry and abandoned, total depth 632 feet.

**Jack County**

Pete Shabey's No. 1 Mask, dry and abandoned, total depth 2,590 feet.

**Throckmorton County**

Kleiner and others' No. 1 McWhortor, dry and abandoned, total depth 800 feet. E. J. McCurley's No. 1 Reynolds Cattle Co., dry and abandoned 1,600 feet.

## MID-YEAR MEETINGS OF A.P.I. DIVISIONS

NEW YORK, Dec. 8.—The first mid-year meetings of the American Petroleum Institute divisions were announced today as follows: Division of Refining, Statler Hotel, St. Louis, April 15-16; Division of Marketing, Mayo Hotel, Tulsa, May 12-13; Division of Production, Baker Hotel, Dallas, Tex., June 3-4.

## MALLOY MADE SPECIAL COUNSEL FOR SINCLAIR

Pat Malloy, president of Malloy & Co., Tulsa, has been retained as special counsel by the Sinclair Oil & Gas Co. In announcing Mr. Malloy's new connection, Edward H. Chandler, general counsel for Sinclair, said the former's representation of the company will include membership on the various oil proration committees in Oklahoma, Texas and Kansas. Mr. Malloy will be the official representative of Sinclair Oil & Gas Co. before the various committees, commissions and producers dealing with the problems of proration. Mr. Malloy's headquarters will be in Tulsa and he will retain his present offices.

Mr. Malloy has been identified as an executive with all branches of the oil business—production, refining and marketing, both domestic and export. In 1909, with the late Captain Constantin, he organized the Constantin Refining Co. He became general counsel in 1915, and president of the reorganized company which took over the properties. In 1926, with the late J. J. McGraw and John H. Markham, Jr., he purchased all the properties of the reorganized concern, and in 1927, by purchase from his partners, became the sole owner. The properties, which include producing and undeveloped leases in Arkansas, Oklahoma and Kansas, were transferred to Malloy & Co., which now owns and operates them. Under the arrangement with the Sinclair Oil & Gas Co. Mr. Malloy retains a supervisory control of the business of Malloy & Co. E. R. Kincade succeeds him as president and will have the active management of the properties. Mr. Malloy becomes treasurer of his company.

## RICHARD AIREY URGES STABILIZATION OF OIL

NEW YORK, Dec. 6.—Richard Airey, one of the leading officials of the Royal Dutch-Shell group, says:

"The great copper and steel industries have taken the initial step to bring about an improvement in their condition. Why not oil? It is the firm opinion of the Royal Dutch-Shell group that the producers who have made possible the great curtailment of production already accomplished and the need for still further curtailment should be compensated by higher prices and not penalized by a reduction. It has been said we have put out feelers for joint price raise. This is not correct. We have made known our opinion through the press and the danger we fear that the curtailment program will be upset by the small producers being brought to the edge of ruin and being compelled to increase production to live. Trade advices show that the consumption of gasoline is declining, therefore crude oil production and refinery runs should be further curtailed. We are following the United States movement by curtailing in Venezuela where November 1 our production was 192,500 bbls. daily and is now 156,000 bbls. daily."

## WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 93)

**ECTOR COUNTY**

H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G. M. M.Br.&A. Sur. ..... Drlg. 3,275 ft.

Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Shut down 3,750 ft.; flowed 110 bbls. on July 12, shut in for storage.

Southern Crude Oil Pur. Co.'s No. 2 Cowder & Co., 660 ft. from S and W of NE cor., Sec. 34, Blk. 43, Twp. 1n, T.P. Sur. ..... Drlg. 750 ft.

**EL PASO COUNTY**

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ..... Shut down 3,089 ft.

**FISHER COUNTY**

Condor Pet. Co.'s No. 1 Wilson, 330 ft. from N and 1,200 ft. from W. Sec. 6, W. E. Richardson Sur. ..... Drlg. 2,170 ft.

Cranfill & Reynolds' No. 2 Flannigan, 330 ft. from S and E of W½, Sec. 200, B.B.B.&C. Sur. ..... Shut down 3,130 ft.

Cranfill & Reynolds' No. 3 Willingham, 330 ft. from S and E of Sec. 307, B.B.B.&C. Sur. ..... Shut down 3,090 ft.

Roeser & Pendleton's No. 1 Littleton, 1,600 ft. from S and 660 ft. from W of SE Sec. 191, B.B.B.&C. ..... Rig on ground (cable).
The Texas Company's No. 2-A Stephens, 330 ft. from S and E, Sec. 79, Blk. 1, H.&T.C. Sur. ..... Drlg. 2,774 ft.
The Texas Company's No. 1-B Teagarden, 1,990 ft. from S and 440 ft. from E, Sec. 8, W. F. Richardson Sur.... Drlg. 2,780 ft.

**GAINES COUNTY**

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE, Sec. 4, Blk. A-8, P.S.L. Sur. ..... Bldg. standard rig.

**GARZA COUNTY**

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.

**GLASSCOCK COUNTY**

F. H. E. Oil Co.'s No. 1 Meek, 1,650 ft. N and E parallel to section lines of SW cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. ..... Drlg. 2,750 ft.
Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur... Total depth 2,956 ft.; shut down.
World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&.. Sur.... Shut down 660 ft.

**HOWARD COUNTY**

Cosden Oil Co.'s No. 6-A Roberts, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W. Sur. ..... Sulphur water 1,433-46 ft.; shut down 1,456 ft.
G. F. Getty's No. 1 Snyder, Sec. 27, Blk. 10, Twp. 1s, SW cor. NE NE ..... Shut down 3,002 ft., contract depth; one-half bbl. oil 24 hrs.
Greene O. & R. Co. et al's No. 1 Denman, 330 ft. from N and W of E½ NE, Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. ..... Pumped 75 bbls. in 15 hrs.; shut down 2,826 ft.
Magnolia Pet. Co.'s No. 1 Kelley Roberts, 330 ft. S and E, Sec. 112, Blk. 29, W.&N.W. Sur. ..... Drlg. 595 ft.
Merriwether's No. 1 Smith, 150 ft. from S, 2,400 ft. from W, Sec. 45, Blk. 33 ..... 2,000 ft. water in hole; shut down 3,270 ft.; 2,000 ft. sulphur water in hole; will abandon.
Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Shut down 261 ft.

**HUDSPETH COUNTY**

Theison's No. 1 University, 3,050 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ..... Spudded 35 ft. and shut down.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 ..... Shut down 3,155 ft.

**IRION COUNTY**

Central Oil Co.'s No. 2 Horney, 150 ft. from N and 1,320 ft. from E, Sec. 3, Blk. 3, H.&T.C. Sur..... Fishing 1,185 ft.
Cromwell et al's No. 3 Tankersley, 150 ft. from N and 210 ft. from W of E½, Sec. 1,320, G.C.&S.F. Sur..... Shut down 1,712 ft.; show oil 1,621-25 ft.
Dixie Oil Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Standard rig.
Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Underreaming 1,395 ft.; slight show oil 1,390-95 ft.; will test.
Williams & Williams' No. 1 Noelke, 300 ft. from N and 1,020 ft. from E, Sec. 8, City of San Antonio Sur..... Shut down 3,401 ft.
F. F. Webb's No. 1 W. H. Williams, 200 ft. from E and 750 ft. from S line, SW NE, Sec. 10, Gonzales County School Land ..... Shut down 100 ft.

**JONES COUNTY**

McBest et al's No. 1 Roberts ..... Total depth 1,000 ft.
Shaheen & Duffy's No. 1 King, 2,650 ft. from N and 165 ft. from W of M. Bueno Sur. No. 196, Abstract 13.. Location.
Union Oil Co. of Nevada et al's No. 1 Hedrick, 200 ft. from N and W of 91.4-acre farm in G. Martinez Sur., Abst. 262, Sub. 5 ..... Drlg. 1,376 ft.
S. C. Yingling et al's No. 1 Cade, 330 ft. from N and W from SE cor. NW, Sec. 17, Blk. 19, T.P. Sur..... Drlg. 1,600 ft.

**LOVING COUNTY**

Cromwell et al's No. 1 Russell et al, 2,310 ft. from NE and 330 ft. from NW, Sec. 80, Blk. 1, W.&N.W. Sur... Rig up.
Douglas et al's No. 1 Wheat & Ramsey, 330 ft. from SE and 2,310 ft. from SW, Sec. 83, Blk. 1, W.&N.W. Sur... Location.
Eppenauer et al's No. 1 Allen, 2,310 ft. from NE and NW lines, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 4,235 ft.
Henshaw et al's No. 2 Reagan & McElwain, 1,650 ft. from SW and 990 ft. from SE, Sec. 84, Blk. 7, W.&N.W. Sur. ..... Rig.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,383 ft.
Independent O. & G. Co.'s No. 2 Wheat, 990 ft. from NW and 330 ft. from SW, Sec. 85, Blk. 1, W.&N.W. Sur.... Top pay 4,316-20 ft.; total depth 4,322 ft.; plugged back to 4,320 ft.; 200 ft. oil in hole 6 hrs.
Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Spudded 140 ft.; shut down.
Lockhart's No. 1 Hubbard, 6,930 ft. from NE and 330 ft. from SE, Sec. 83, Blk. 33, H.&T.C. Sur..... Cellar.
Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 33, H.&T.C. Sur. ..... Rigged up and shut down.
Martin et al's No. 1 Wheat, 2,310 ft. from NE and 330 ft. from NW, Sec. 73, Blk. 1, W.&N.W. Sur..... Location.
Miller et al's No. 1 Chapman, 225 ft. from NW and 285 ft. from SW line, Sec. 71, W.&N.W. Sur. ..... Shot with 175 qts. 4,285-4,325 ft.; 100 ft. fluid in hole; will drill deeper; total depth 4,326 ft.
Rush et al's No. 1 Wheat, 330 ft. from NW and SW, Sec. 77, Blk. 1, W.&N.W. Sur. ..... Cellar.
Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W, Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Shut down to drill water well.
California Co.'s No. 5 Reagan & McElvain, 990 ft. from NW and 330 ft. from NE of Sec. 84, Blk. 1, W.& N.W. Sur. ..... Drlg. 3,825 ft.
California Co.'s No. 6 Reagan & McElvain, 330 ft. from SW and 1,650 ft. from SE, Sec. 84, Blk. 1, W.&N.W. Sur. ..... Drlg. 2,450 ft.
California Co.'s No. 7 Reagan & McElvain, 3,033 ft. from SE and 1,014 ft. from NE of Sec. 84, Blk. 1, W.& NW Sur. ..... Cellar.

**MENARD COUNTY**

Barnett et al's No. 3 Callan City Co., 330 ft. from S and W, Sec. 1, B.S.&F. Sur. ..... Drlg. 1,912 ft.
Barnett et al's No. 4 Callan City Co., 1,200 ft. from S and 2,200 ft. from W, Sec. 1, B.S.&F. Sur. ..... Machine.
Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... Shut down 2,490 ft.; moving in casing.

**MIDLAND COUNTY**

Kerwin et al's No. 1 Mathen, 2,310 ft. from N and 335 ft. from W line, Sec. 40, W. L. Gray Sur. ..... Shut down 3,682 ft.

**MITCHELL COUNTY**

Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.&P. Sur. ..... Shut down 3,112 ft.; top pay 3,038-75 ft.; shot 270 qts. 3,020-92 ft.; swabbed 40 bbls. in 24 hrs.
Morrison et al's No. 1 Poe et al, 660 ft. S and 1,980 ft. W, parallel to section lines of NE cor., Sec. 8, Blk. 27, T.&P. Sur. ..... Spudded 10 ft. and shut down.

**PECOS COUNTY**

Bell et al's No. 1 Eaton, 2,310 ft. from NE and 990 ft. from SE, Sec. 33, Blk. 3, H.&T.C. Sur. ..... Spudding.
Bell et al's No. 1 Schraff & Blackman, 2,310 ft. NE and 330 ft. NW of E cor., Sec. 37, Blk. 3, H.&T.C. Sur.... Show oil 1,562-64 ft.; waiting on cement to set; total depth 1,564 ft.
Dittman's No. 1 Jackson, 2,310 ft. from NE and 330 ft. from NW, Sec. 28, Blk. 3, H.&T.C. Sur. ..... Moving in machine.
Dittman's No. 2 Eaton, 990 ft. from SW and 330 ft. from SE, Sec. 35, Blk. 2, H.&T.C. Sur..... Location.
Dittman's No. 1 Eaton, 330 ft. from NE and SE, Sec. 37, Blk. 3, H.&T.C. Sur. ..... Spudding.
Humble Oil & Ref. Co.'s No. 1 Rosenhof, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 224, Blk. 10, G.H.&S.A. Sur. ..... Tools in hole 6,170 ft.
Lewis & Siegel's No. 1 Beal, 330 ft. from N and W of SE, Sec. 12, Blk. 30, Twp. 1s, T.&.. Sur. ..... Location.
Mann's No. 1 Schratt & Blackman, 3,000 ft. from SW and 990 ft. from SE, Sec. 32, Blk. 3, H.&T.C. Sur..... Spudded and shut down.
McCurdy & Brown's No. 2 Tippett, 150 ft. from N and W of SE, Sec. 40, Blk. 104, G.C.&S.F. Sur..... Location.
McCarty Oil Co.'s No. 3 Gray, 400 ft. from N and 2,260 ft. from W, Sec. 591, G.C.&S.F. Sur. ..... Shut down 1,420 ft.
Messenger et al's No. 1 Buts, 1,830 ft. from NW and 1,170 ft. from SW, Sec. 54, Blk. 10, H.&G.N. Sur. ..... Running 5 3/16-in. casing 1,150 ft.
Mid-Kansas O. & G. Co. et al's No. 1-A Sellman, 250 ft. from S and 330 ft. from W, Sec. 12, Blk. 194, G.C.&S.F. Sur. ..... Rig up and drilling water well.
J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 1,700 ft.
J. D. O'Mara's No. 1 Bennett, Sec. 593, 1,460 ft. from S 150 ft. from E, G.C.&S.F. Sur. ..... Total depth 1,230 ft.; top pay 1,089 ft.; plugged back to 1,185 ft.; will drill deeper.
J. D. O'Mara's No. 1 Streety, S of Sec. 1, W. P. Howard Sur. ..... Shut down 2,210 ft.; fishing.
Oregon Oil Corp.'s No. 2 Yates, 150 ft. from S and W of Sec. 58, Blk. 1, L&G.N. Sur. ..... Shut down 2,440 ft.; flowing sulphur water.
Perren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Fishing 1,765 ft.
Plymouth Oil Co.'s No. 1 Perry, 330 ft. from N and W, Sec. 13, Blk. 194, G.C.&S.F. Sur. ..... Total depth 1,920 ft.; top pay 1,892 ft.; flowing 25 bbls. per day.
R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C. Sur. ..... Spudded and shut down.
Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Shut down 5,000 ft.
Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 12, H.&G.N. Sur. ..... Shut down 405 ft.
Side & Side's No. 1 Blackstone & Slaughter, C NW, Sec. 34, Blk. A-2, T.C. Sur. ..... Drlg. 3,030 ft.
Schilling & Slaughter's No. 1 Yates, 1,580 ft. N and 150 ft. E of NW cor. Runnels County School Land, but located in Sec. 70, Blk. 1, L&G.N. Sur. ..... Cleaning out 337 ft.
Southern Crude Oil Pur. Co.'s No. 1 Scharff & Blackman, 4,550 ft. 40° E and 330 ft. 50° W of most southerly cor. Sec. 38, Blk. 3, H.&T.C. Sur. ..... Pulling 10-in. casing; total depth 617 ft.
California Co. et al's No. 1 Thomas, 990 ft. from NW and SW, Sec. 31, Blk. 34, H.&T.C. Sur. ..... Location.
The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&St.L. Sur. ..... Shut down 3,504 ft.
Warner's No. 1 Webb, 2,550 ft. from NW and 6,100 ft. from NE of Sec. 311, Abst. 756, C. McGinley Sur..... Drlg. 2,637 ft.
Williams & Moran's No. 1 Heiner Est., 450 ft. from N and 2,490 ft. from W of Sec. 590, G.C.&S.F. Sur. ..... Drlg. 1,185 ft.

**REAGAN COUNTY**

Big Lake Oil Co.'s No. 5-C University, 625 ft. from S and 900 ft. from W of Sec. 25, Blk. 9 ..... Coring 8,103 ft.
Slick estate et al's No. 1 August, C SE, Sec. 1,216, G.C.&S.F. Sur. ..... Fishing 2,390 ft.
Texon O. & L. Co.'s No. 4-B University, 1,130 ft. from N and W of Sec. 26, Blk. 9 ..... Drlg. 7,142 ft.

**REEVES COUNTY**

R. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.
Black & Kink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 50 ..... Shot second time 30 qts. 1,820-31 ft.; shut down 1,860 ft.
Riggs & Smith's No. 1 Lee Monroe, 2,190 ft. from NE and 330 ft. from NW line, Sec. 34, Blk. 8, H.&L.N. Sur. ..... Shut down 176 ft.
Salsbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from NW line, Sec. 34, Blk. 7, H.&L.N.... Temporarily abandoned.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.... Shut down 4,415 ft.
California Co.'s No. 2 Kloh & Rumsey, 990 ft. from S and 1,520 ft. from E, Sec. 11, Blk. 54, Twp. 4, T.&P. ..... Location.

**RUNNELS COUNTY**

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 419 ..... Drlg. 1,850 ft.

**SCHLEICHER COUNTY**

Delmar Oil Co.'s No. 1 O'Harrow, C NW, Sec. 56, Blk. 1, G.H.&S.A. Sur. ..... Drlg. 5,680 ft.
Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. of Sec. 37, Blk. K, G.H.&S.A. Sur. ..... Shut down 3,960 ft.
Weaner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Shut down 750 ft.
Westyde et al's No. 1 Meador, 1,320 ft. from S and E of Sec. 661, G.C.&S.F. Sur. ..... Location.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,027 ft.

**SCURRY COUNTY**

Byrd & Harmon's No. 1 Murphy, Jr., 320 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ..... Pumping 20 bbls. per day for fuel oil; total depth 3,501 ft.
Camp Spring Oil Co.'s No. 1 Strayhorn, 330 ft. from S and 1,980 ft. from W of Sec. 154, Blk. 3, H.&G.N. Sur. Shut down 875 ft.
I. D. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 4,970 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. ..... Cellar.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 155, Blk. 97, H.&T.C. Sur. ..... Shut down 1,175 ft.
Mid-Kansas O. & G. Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ..... Shut down 4,513 ft.

**STERLING COUNTY**

Beesley et al's No. 1 Foster, 2,940 ft. N and 300 ft. W of SW cor., Sec. 7, Blk. 22, H.&T.C. Sur., but in Sec. 16, Blk. 21, Twp. 4s, T.&P. Sur. ..... Shut down 515 ft.

**TAYLOR COUNTY**

Eastland Oil Co. et al's No. 2 Hunter, 3,418 ft. from S and 2,174 ft. from E of William R. Ellis Sur..... Shut down 2,405 ft.; show oil 2,388-94 ft.; testing.
John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ..... Ran 3-in. casing; total depth 6,250 ft.
Hucony Oil Co. et al's No. 1 Richie, C SE, Sec. 16, Blk. A. S.P. Sur. ..... Drlg. 2,580 ft.
Sanger et al's No. 1 City of Abilene, 330 ft. from S and 1,400 ft. from E of Sec. 66, Blind Asylum Land..... Drlg. 1,760 ft.
Sanger O. & R. Co.'s No. 1 Osborn, 330 ft. from SW of SE, Sec. 68, Blind Asylum Land ..... Rigged up and shut down.

**TERRELL COUNTY**

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.

Milham Corp. of Texas' No. 1 R. M. Bassett et al, 150 ft. from N line and 2,640 ft. from E and W lines of Sec. 76, Blk. Y, James Bass Sur. ..... Location.
Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mrs. J. B. McInees' No. 1 Sam Belt, C, Sec. 16, Blk. D-7, E.L. Sur. ..... Shut down 880 ft.; moved off machine.
Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S. Sec. 26, Blk. 161, G.C.&S.F. Sur.... Drlg. out cement; 8¼-in. casing set at 4,467 ft.; total depth 5,229 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&N.G. Sur. ..... Shut down 640 ft.

**TOM GREEN COUNTY**

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.
Cosden Oil Co.'s No. 1 William Anson, 2,310 ft. S, 330 ft. W of NE cor., Sec. 20, Blk. 24, H.&T.C. Sur. ..... Location.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Dinger Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur..... Shut down 1,835 ft.
Phillips Pet. Corp.'s No. 1 Gulden, 1,250 ft. from N and 1,583 ft. W of Sec. 77, James Webb Sur. ..... Shut down 5,010 ft., contract depth; may drill deeper.
Pratt & Hancock's No. 1 Lewis, 450 ft. S and 518 ft. E of SE cor. of James Webb Sur. No. 77, located in Albert Black No. 75 ..... Location.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Survey No. 2 ..... Location.

**UPTON COUNTY**

Duffey et al's No. 3 McClintic, 330 ft. from N and 1,650 ft. from E, Sec. 206, Blk. F, C.C.S.D.&R.G.N.G. ..... Material.
Humble O. & R. Co.'s No. 1 Damron et al, 330 ft. from N and W, Sec. 192, Blk. F, C.C.S.D.&R.G.N.G. Sur.... Spudding.
R. R. Penn & Shell Pet. Corp.'s No. 1 Halamicek, C SE Sec. 93, Blk. D, C.C.S.D.&R.G.N.G. ..... Location.
T. P. Coal & Oil Co.'s No. 1 King Ranch Oil & Lignite Co., 2,310 ft. from N and 990 ft. from W, Sec. 28, Blk. 2, M.-K.-T. Sur. ..... Drlg. 1,015 ft.
Weekly Oil Corp.'s No. 1 Shirk, 468 ft. from S and 2,317 ft. from E, Sec. 15, Blk. 3, M.-K.-T. Sur..... Preparing to run 6⅝-in. casing 2,500 ft.
Weekly Oil Corp. et al's No. 1 McClintic, 1,650 ft. from N and 330 ft. from E, Sec. 206, Blk. F, C.C.S.D. &R.G.N.G. Sur. ..... Spudding 100 ft.

**VAL VERDE COUNTY**

Independent Operators' No. 1 Whitehead, Sec. SE. Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Fishing 6,780 ft.
Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 33, Blk. D-8, E.L. Sur..... Shut down 3,035 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE, Sec. 47, Blk. Y. Shut down 4,009 ft.

**WARD COUNTY**

Alpine Oil Co.'s No. 2 Boogher, 2,200 ft. from NW and 1,800 ft. from SW lines, Sec. 11, Blk. 5, H.&T.C. Sur... Drlg. 1,570 ft.
Black & Massey's No. 1 Allen, 2,108 ft. from NW and 2,100 ft. from SW, Sec. 11, Blk. 5, H.&T.C. Sur..... Cem. casing 1,150 ft.
Empire Gas & Fuel Co.'s No. 1 John Sealy estate, 330 ft. from S and 1,650 ft. W of NE cor., Sec. 5, Blk. F, T.&M.M. Bros. Sur. ..... Drlg. 1,195 ft.
Grand Falls Oil Co.'s No. 1 Blair & Boogher, 500 ft. from SW and 1,160 ft. from NW, Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 900 ft.
Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur.... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-77 ft.; salt water 2,515 ft.; plugged back to 2,477 ft.
Kugle et al's No. 1 Wallace, 330 ft. from SE and 1,263 ft. from SW, Sec. 19, Blk. 34, H.&T.C. Sur. ..... Drlg. 540 ft.
Magnolia Pet. Co.'s No. 1 Sealy, 330 ft. from S and E of NE cor., Sec. 46, Blk. 2, G.M.M.B.&A. Sur..... Flowing average 26 bbls. per day; total depth 3,065 ft.
Magnolia Pet. Co.'s No. 1 Sealy (Atlantic), 2,310 ft. from S and 1,650 ft. from E Sec. 45, Blk. F, G.M.M.B.&A. Sur. ..... Location.
R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C. Sur. ..... Shut down 1,200 ft.
Rector Oil Co. et al's No. 1 Boogher, 1,783 ft. from NW and 1,800 ft. from SW, Sec. 11, Blk. 5, H.&T.C. Sur.... Drlg. 495 ft.
Richardson et al's No. 5 O'Brien et al, 330 ft. from N and 2,970 ft. from W of Sec. 5, Blk. F, G.M.M.B.&A. Sur. ..... Making 7,000,000 ft. gas and 75 bbls. oil per day; total depth 2,769 ft.
Rickford & Smith's No. 1 Johnson, 120 ft. NE and 175 ft. SE of N cor., Sec. 7, Blk. 32, H.&T.C. Sur., but located in Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 710 ft.
California Co. et al's No. 1 Lanham, 990 ft. from NE and SE, Sec. 35, Blk. 34, H.&T.C. Sur. ..... Building rig.
California Co.'s No. 1 Gordon, 330 ft. from NE and SE, Sec. 6, Blk. 34, H.&T.C. Sur. ..... Location.
T. P. Coal & Oil Co.'s No. 1 James, 330 ft. from SW and SE, Sec. 5, Blk. 34, H.&T.C. Sur. ..... Drlg. 885 ft.
Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 is N and S. 220 ft. S and 1,910 ft. W. Sec. 17, Blk. 5 ..... Standard rig.
Shipley et al's No. 1 Monroe, 330 ft. SE. SW, Sec. 3, Blk. 1 ..... Drlg. 3,130 ft.
T. P. Coal & Oil Co.'s No. 1 Barker, 330 ft. from SW and NW of Sec. 27, Blk. B-29, Public School Land ..... Shut down 2,425 ft. for storage.
California Co.'s No. 1 Allen, 2,310 ft. from NE and 330 ft. from SE, Sec. 30, Blk. 34, H.&T.C. Sur. ..... Running 8¼-in. casing 2,322 ft.

**WINKLER COUNTY**

Magnolia Pet. Co.'s No. 1 Bashara, 1,650 ft. from S and 2,310 ft. from W, Sec. 17, B-3, P.S.L. Sur. ..... Drlg. 760 ft.
Magnolia Pet. Co.'s No. 1 Walton, 2,310 ft. from N and W Sec. 16, Blk. 77, P.S.L. ..... Location.
A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Shut down 3,506 ft.
Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Shut down 4,639 ft.

## WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 94)

Danciger O. & R. Co.'s No. 2 Sullivan, 231 ft. N. 884 ft. W. of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... Standardizing 2,709 ft.
Dulaney & Word's No. 1 Morse, 330 ft. S and E. SW, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Dry and abd. 2,892 ft.
Empire G. & F. Co.'s No. 1 Bell, 1,320 ft. S, 1,660 ft. E, SW, Sec. 111, Blk. 3, I.&G.N. Sur. ..... S.D. 2,903 ft; 30,000,000 ft. gas 2,880-2,903 ft.
Empire G. & F. Co.'s No. 1 Cantrell, 330 ft. S and E, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Estimated 10,000,000 ft. gas 2,630-40 ft; T.D. 3,010 ft; 38,500,000 ft. gas 2,630-3,010 ft.
Empire G. & F. Co.'s No. 1 Sullivan, 330 ft. NW of E 64 ac. of W 104 ac. of S 264 ac., N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... 1,000,000 ft. gas 2,775 ft; S.O. 3,135 ft. and 3,210-12 ft; drlg. 3,420 ft.
Hurst et al's No. 1 Ayres, 330 ft. S and E. Sec. 76, Blk. 3, I.&G.N. Sur. ..... Rotary rig.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. ..... Drlg. by tools 3,770 ft.
Magnolia Pet. Co.'s No. 1 Latham, 876 ft. N, 150 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. ..... 9,000,000 ft. gas 2,705 ft; drlg. 3,060 ft.
Magnolia Pet. Co.'s No. 2 Heitholt, 150 ft. S, 1,156 ft. W, SE, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Drlg. 500 ft.
Magnolia Pet. Co.'s No. 2 Latham, 175 ft. N, 150 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,595 ft.
Magnolia Pet. Co.'s No. 1 Morse, 330 ft. N and W, S½ NE, Sec. 5, Blk. 26, H.&G.N. Sur. ..... Rigging up.
Magnolia Pet. Co.'s No. 2 Sailor, 330 ft. S and W, E½ NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Bldg. rig.
Mazda Oil Co.'s No. 1 Combs & Worley, 330 ft. S, 180 ft. W, NE, Sec. 35, Blk. 3, I.&G.N. Sur. ..... Rigging up rotary.
Midwest Explin. Co.'s No. 1-B Taylor, 660 ft. N and W, Sec. 7, Blk. H, A. W. Willard Sur. ..... Drlg. 2,725 ft.
Midgray Oil Co.'s No. 1 McCullough, 267 ft. N, 150 ft. E of 246.9 ac. in Sec. 153, Blk. 3, I.&G.N. Sur. .... Drlg. 2,680 ft; estimated 30,000,000 ft. gas 2,477-2,680 ft.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... Fishing for bit; T.D. 2,620 ft.
North American O. & G. Co.'s No. 1 Sullivan, 1,320 ft. S and E. Sec. 160, Blk. 3, I.&G.N. Sur. ..... Rig on ground (rotary).
Phillips Pet. Co.'s No. 1 Barrett, 330 ft. S, 150 ft. W, W½, N 56 ac., Sec. 1,360, Blk. 3, I.&G.N. Sur. .... 5,000,000 ft. gas 2,760-75 ft; fishing 3,080 ft; 8,000,000 ft. gas 2,950-55 ft.
Phillips Pet. Co.'s No. 2 Barrett, 130 ft. N, 465 ft. W, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,690 ft.
Prairie O. & G. Co.'s No. 1 Reynolds, 330 ft. S and E, NW, Sec. 84, Blk. 3, I.&G.N. Sur. ..... Estimated 1,900,000 ft. gas 2,590-2,920 ft; S.O. 3,097 ft; drlg. 3,280 ft.
W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... Estimated 4,000,000 ft. gas 2,875 ft; fishing 3,106 ft.
Shamrock O. & G. Co.'s No. 1 Reynolds, 330 ft. N and E, SE SE, Sec. 84, Blk. 3, I.&G.N. Sur. ..... S.O. 2,905 ft. and 2,994 ft; S.D. 3,193 ft; P.B. 3,103 ft; shot with with 20 qts. 3,091–3,101 ft; C.O.
Skelly Oil Co.'s No. 1 Heitholt, 150 ft. N, 3,806 ft. W, Sec. 153, Blk. 3, I.&G.N. Sur. ..... 9,000,000 ft. gas 2,606-2,865 ft; fishing 2,915 ft.
Smith's No. 1 Morse, 200 ft. S, 330 ft. W, Sec. 6, Blk. 26, H.&G.N. Sur. ..... 3,000,000 ft. gas 2,150-70 ft; S.D. 2,892 ft; 400 ft. oil in hole.
Southern States Gas Co.'s No. 1 Case, 330 ft. N and W, E½, Sec. 181, Blk. B-2, H.&G.N. Sur. ..... Spudded.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig.
The Texas Co.'s No. 3 Brown, 150 ft. S, 330 ft. W of 247-ac. lease, Sec. 137, Blk. 3, I.&G.N. Sur. ..... S.G. 2,935 ft; T.D. 3,250 ft; T.P. 3,242 ft; 135 bbls. first 24 hrs.
Warner Oil Co.'s No. 1 Morse, 330 ft. S and W, N½ NW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... Cellar.

**HUTCHINSON COUNTY**

Combination O. & G. Co.'s No. 1 Johnson Bros. (Whaley), C SE SW, Sec. 2, Blk. Y-2, T.T.R.R. Sur. .... Drlg. 850 ft.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E, of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. Rigging up rotary.
Dixon Creek Oil Co.'s No. 1 Johnson Bros., 330 ft. N and W of E 60 ac. of NW 100 ac., Sec. 1, Blk. X03, H.&O.B. Sur. ..... T.D. 3,112 ft; plugging back.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E, of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... Rotary rig.
Liner Drlg. Co.'s No. 1-D Johnson Bros., 330 ft. N and E, W½ SW, Sec. 6, Blk. 1, B.&B. Sur. ..... Drlg. 400 ft.
Texas Interstate P. L. Co.'s No. 1 Bivins, C E½ of N 160 ac., Sec. 91, Blk. 6, H.&T.C. Sur. ..... Drlg. 1,525 ft.
Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Drlg. 400 ft.
Mitchell et al's No. 1 Dunnaway, 330 ft. N, 990 ft. E. Sec. 7, T.T.R.R. Sur. ..... Bldg. rotary rig.
Sinclair O. & G. Co.'s No. 1-A Johnson Bros., 330 ft. N, 430 ft. E. NW, Sec. 32, Blk. Y, A.&B. Sur. Drlg. 2,435 ft.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.O. 3,065 ft. and 3,108-10 ft; S.D. 3,110 ft.

**LIPSCOMB COUNTY**

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Lowering 5 3/16-in. csg; T.D. 5,003 ft.

**LUBBOCK COUNTY**

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; S.D. 4,167 ft.

**MOORE COUNTY**

Dana O. & G. Co.'s No. 1 R. Utey, 330 ft. N, 330 ft. E, W½ SE, Sec. 135, T.&N.O. Sur. ..... Rig on ground.
Delmar Oil Co.'s No. 1-A Jones, 330 ft. N, 990 ft. E, NW, Sec. 171, Blk. 3-T, T.&N.O. Sur. ..... Estimated 100,000,000 ft. gas 3,090 ft; set 6-in. csg. 3,327 ft.
Gulf Prod. Co.'s No. 1 Dare, C SE, Sec. 312, Blk. 44, H.&T.C. Sur. ..... Drlg. 1,100 ft.
Home Gas Co.'s No. 1 Reeder, 330 ft. N and W, N½ E½ NE, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... 25,000,000 ft. gas 3,139-3,200 ft; S.D. 3,505 ft.
Morton et al's No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... Cellar.
Shamrock O. & G. Co.'s No. 1 Sullivan, 330 ft. S and E, NE, Sec. 139, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 2,165 ft.
Sunray Oil Co.'s No. 1 C. R. Jones, 330 ft. E, 330 ft. S, W½ SW, Sec. 164, T.&N.O. Sur. ..... Drlg. 3,125 ft.
Sunray Oil Co.'s No. 2 Jones, 330 ft. S, 990 ft. E, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

**MOTLEY COUNTY**

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

**OLDHAM COUNTY**

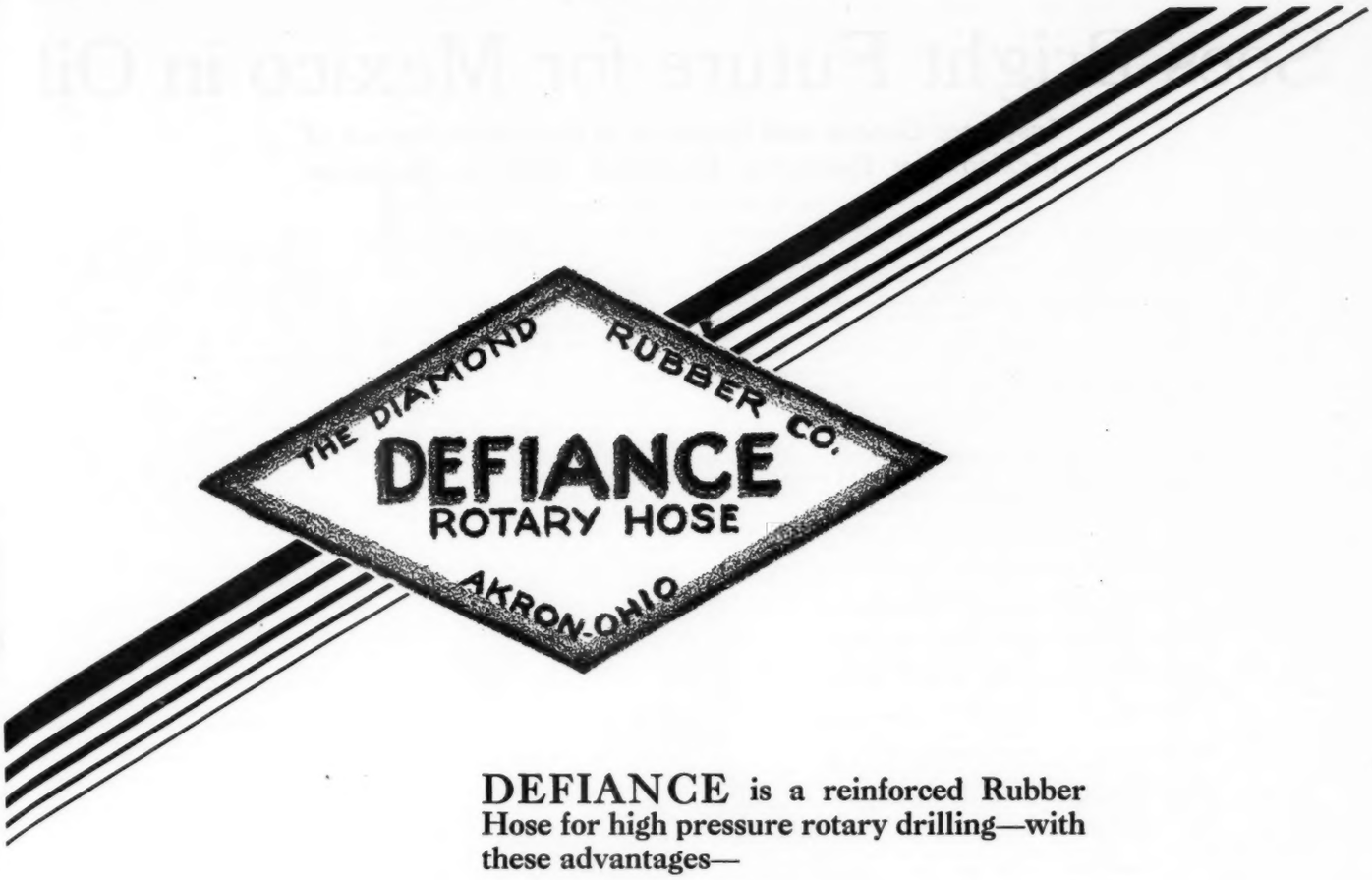
Amalgamated German-Amercian Oil Corp.'s No. 1 Norton, 330 ft. S and E. Sec. 12, T.&N.O. Sur. ..... Spudded and S.D.
Chambers et al's No. 1 Herring, CNL, Sec. 29, Blk. S, G.C.&S.F. Sur. ..... S.D. 680 ft.

**POTTER COUNTY**

Texas Interstate P. L. Co.'s No. 1 Rockwell, C N½ S½, Sec. 102, Blk. 46, H.&T.C. Sur. ..... S.D. 650 ft.

**WHEELER COUNTY**

Devore & Robinson's No. 1 Keeley, 2,310 ft. S and E, Sec. 33, Blk. A-4, H.&G.N. Sur. ..... Spudded and S.D.
Devore & Robinson's No. 1 Sitter, 2,310 ft. S and E, Sec. 33, Blk. 24, H.&G.N. Sur. ..... Location.
Guernsey Oil Co. et al's No. 1 Sewell, 320 ft. N and E, Sec. 38, Blk. 13, H.&G.N. Sur. ..... S.G. 1,985 ft; S.D. 2,305 ft.
Murchison & Fain's No. 2 Magnolia Pet. Co. (fee), 660 ft. N and E, Sec. 54, Blk. 23, H.&G.N. Sur. ..... Drlg. 300 ft.
Wischkamper et al's No. 1 Kiser, 330 ft. N and E, SW, Sec. 33, Blk. 17, H.&G.N. Sur. ..... S.D. 2,416 ft.
Woodley et al's No. 1 Sloss & Admire, 660 ft. N, 330 ft. E, Sec. 47, Blk. 13, H.&G.N. Sur. ..... S.O. 2,150–90 ft; some wtr; T.D. 2,210 ft; 500 ft. oil in hole at 2,205-10 ft.
Vollmert's No. 1 Porter, 330 ft. S and E, NE, Sec. 15, Blk. 27, H.&G.N. Sur. ..... S.D.

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# Sees Bright Future for Mexico in Oil

## Inspector General and Engineer of Petroleum Bureau of Mexico Say Resources Exploited Only to Minimum

By M. J. Zevada* and G. Ortega†

The origin of the oil industry in Mexico has been dated to the pre-Cortesian era. Many authors have published translations of Aztec hieroglyphs and codes, mentioning the several places where oil seepages existed, and describing the many uses of petroleum among the Indians.

Production of oil in those ancient times was limited to the natural flow of the seepages or to the rough exploitation of asphalt deposits, and in some cases the digging of very shallow wells.

Though surface oil indications were known in many regions of Mexico, the oil seepages—"Chapopoteras"— of the Gulf Coast attracted the widest attention, especially those existing in the States of Tamaulipas, Vera Cruz and Tabasco.

One of the zones selected for exploration, and in its case for development, was that which crossed the railroad from San Luis Potosi to Tampico in the west region of the Panuco River Basin. The first drilling sites were located near the "De la Pez" Hill (Hill of Tar) where the chapopote deposits were thought to be very favorable indices of oil producing areas. The choice was well made as the first well concluded there in May, 1901, gave a valuable production. Other wells followed and thus it is that from that time a noninterrupted and constantly ascending production has been obtained.

Operations in the Ebano Field which includes several producing areas, were undertaken to assure a good supply of oil for the Central Railway system, through its Aguascalientes-San Luis Potosi-Tampico branch line. Success was complete, wells of great production and life having been located in that field, several of which are still producing after 16 years of exploitation. Ezequiel Ordonez, the well known Mexican geologist and discoverer of these producing areas, said: "The first producing well of the Pez produced around 1,500 bbls. daily for 70 months."

To the west of Papantla, southern Vera Cruz, in the district formerly known as Cougas, now called Furbero, work begun in earlier times was renewed in 1904, reached a frank and definite success by 1907; the area being continually active ever since, giving a very fine quality of oil.

### Dos Docas Well

In 1902, explorations began in the Isthmus of Tehuantepec, followed soon after by similar prospecting in Tabasco and in various sections of the Gulf Coast. Meanwhile, the Mexican oil industry developed little by little until in 1908 the unexpected spouting and burning of the famous "San Diego de la Mar" well No. 3, more generally known as the "Dos Bocas" well, revealed the existence of great potential oil pools in the Mexican Gulf Coast region. The fire of the "Dos Bocas" well was a real catastrophe. The fire raged for nearly two months, ceasing suddenly when, alternating with petroleum, salt water charged with gases, mostly anhydrous carbonic acid and hydrogen sulphide, finally began to flow. Even after the fire ended, oil continued to flow intermittently, however in decreasing quantities and mixed with salt water and high pressure gases. Enormous gushers would spout to a height of 6 to 8 meters, but at last all activity lessened as did the quantity of oil which boiled up until the whole region was converted into a kind of oil lake. What had been a great well became an enormous depression, a kind of crater, some 300 meters in diameter, from which great volumes of hot water and gases flow incessantly.

The great proportions of that disaster, and the enormous volumes of oil lost at that time, awakened great interest in scientific and business circles the world over, with the result that from that year, exploration and formal development operations were considerably intensified until in 1910 they were gloriously crowned with success by the discovery of the marvelous Juan Casiano and Potrero del Llano gushers in the Tuxpam region, and the very important Panuco and Topila wells in the Panuco River Basin, all in the State of Vera Cruz.

### Historic Producers

Other discoveries followed in the years succeeding, among which, because of their importance, may be cited: That of the Alamo, on the right bank of the Tuxpam River; the Cerro Azul in the municipality of Tepezintla in the State of Vera Cruz; and Los Naranjos in the municipality of Amatlan of the same State. In fact, a multitude of remarkable producers in uninterrupted succession in a short time placed Mexico second among oil producing countries of the world. Many of Mexico's wells have been the greatest in the world and have given an enormous production. The Juan Casiano well No. 7, in the municipality of Chinampa, State of Vera Cruz, for example, produced during nine years of activity more than 12,000,000 cubic meters (75,000,000 bbls.); "Potrero del Llano No. 4," in the municipality of Temapache, State of Vera Cruz, brought in at the end of December, 1910, produced from that time up to June, 1930, inclusive, 18,511,963 cubic meters (116,440,247 bbls.); "Cerro Azul No. 4," brought in February, 1916, with a maximum daily production of 41,500 cubic meters (260,000 bbls.) has given up to June, 1930, inclusive, 13,005,018 cubic meters (81,801,563 bbls.), and it is still producing at a good rate.

It is interesting to note the steps followed by Mexico until it became one of the most important factors in the oil production of the world. The following dates and figures mark the noteworthy stages of this development: The era of continuous and ascending production began in 1901; in 1908, the spouting and burning of the great "Dos Bocas" well, near the Tamiahua Lagoon (State of Vera Cruz), assured the existence of great potential pools in Mexico; 1910, the producing areas of Panuco and Topila in the Panuco River Basin, were discovered as were also those of "Juan Casiano" and "Potrero del Llano," in the Tuxpam region; 1911, consequent upon the preceding discoveries, Mexico's oil output increased remarkably and was in that year 1,994,640 cubic meters (12,552,798 bbls.); 1918, Mexico, with a production of 10,147,587 cubic meters (63,828,326 bbls.), held unquestioned second place among world oil producing countries; 1921, unusual production consequent upon exploitation in competition of the so-called "Golden-lane" in the Tuxpam region, production reaching a total of 30,746,834 cubic meters (193,397,587 bbls.).

In the relatively short period from 1901 to June, 1930, inclusive, Mexican production reached the enormous figure of 251,236,620 cubic meters (1,580,325,466 bbls.), valued commercially at $2,863,024,125 Mexican pesos.

During the past few years, the exploitation of oil in our country has been greatly restricted, owing to the crisis prevailing, due to the tremendous overproduction in the United States of America, which country is our most important market, since it alone absorbs over 50 per cent of our petroleum exportation. Nevertheless, Mexico continues occupying a very prominent place in the oil world, due to its effective production as well as to its potential richness.

During the year 1929, the Mexican oil fields produced 7,104,591 cubic meters (44,687,879 bbls.), with a commercial value of $92,025,441 Mexican Cy. This quantity is less than the production for the preceding year, and unquestionably less than Mexico is capable of producing. There was, therefore, a decrease of 868,479 cubic meters (5,462,731 bbls.) in the production of 1929 in comparison with that of 1928. As a producer of oil, Mexico figured in 1929 in the fourth place among 25 countries or over. During the first six months of this year, our production reached 3,249,370 cubic meters (20,438,538 bbls.) with a commercial value of $41,584,277 Mexican Cy.

### Settlement of Oil Controversy

An occurrence of far-reaching importance was registered at the beginning of the year 1928, when as a consequence of the amendments which the Mexican National Congress made to Articles 14 and 15 of the petroleum law, in March of that year, a decree was issued modifying the rulings of said law, thereby acknowledging that the rights obtained before the promulgation of the constitution of 1917, are not subjected to limitations of time.

With these amendments a happy end was put to the long controversy, that arose regarding our oil legislation; a controversy that more than once stressed our international relations and constituted a serious national problem. It was then recognized and declared in Mexico and abroad, and so it was acknowledged by the American Embassy that the international friction and disagreement as regards the oil law had totally disappeared. Recently, said acknowledgment was ratified in the United States of America on the occasion of the inauguration of the new presidential period of that country in 1929. Both, officially and in the newspapers of that country, joyful recollections were made of the agreement celebrated between Mexico and the United States of America in March, 1928, which constituted the formal recognition of the Mexican law and the acceptation of the justice of the actitude of Mexico.

All the oil companies now operating in Mexico have abided by the law; even those that were formerly opposed to it, have submitted to its precepts. Before the issue of the petroleum law, the oil companies had an area of 2,992,563 Hs. (7,394,623 acres), the area applied for, afterwards, be it in confirmatory, preferential or ordinary oil concessions, in June, 1930, exceeded 71,000,000 hectareas (over 175,000,000 acres).

### Drilling Record

Previous to 1917, a total number of 279 wells had been drilled in Mexico out of which 174 were producers giving a maximum joint capacity of 102,243 cubic meters (643,109 bbls. daily). Beginning in 1917, when all concessions for exploration and exploitation of oil were authorized conditionally, that is, subject to the precepts of the Mexican Constitution and later to the law regulative in this matter, there were drilled, up to June, 1930, inclusive, 4,833 wells, 2,204 of which were producers with a joint maximum initial production of 1,978,491 cubic meters (12,444,706 bbls.) daily.

Mexico's total production prior to 1917 was 26,506,156 cubic meters (166,789,-

Yenangyaung oil fields, Burma.

*Inspector General, Petroleum Bureau of Mexico. †Engineer of the Petroleum Bureau of Mexico.

# The Straight Line

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702 bbls.) with a commercial value of $60,151,920 Mexican), while that obtained later up to and including June, 1930, was 224,727,464 cubic meters (1,413,535,764 bbls.), valued commercially at $2,802,872,205 Mexican.

The same comparison holds for oil exports; prior to 1917 the total amount of crude oil and refined products exported was 16,751,269 cubic meters (105,365,480 bbls.), while the figures for oil exported from 1917 up to June, 1930, inclusive, are 196,538,949 cubic meters (1,236,229,979 bbls.).

Even more telling are the figures of capital invested in Mexico's petroleum industry before and after 1917: $182,752,699 (Mexican) as against $748,100,000 (Mexican) invested under the present constitution, through the first half of 1930.

The foregoing figures show clearly that interests created prior to 1917 were incomparably inferior to those created after the constitution now in force was enacted.

### Possible Oil Bearing Lands

The studies and investigations made to date, estimate the possible oil bearing lands in Mexico at not less than 60,000,000 hectareas (150,000,000 acres), of which scarcely the ten-thousandth part has been exploited.

Taking into account surface manifestations, special formations, geological configuration and structure, or proximity to producing fields from which they are separated only by slight geographic but not geological breaks, the following regions of Mexico are considered as highly probable oil bearing areas: Great stretches along the northern border near the producing areas south and southwest of Texas; a belt averaging 100 kilometers in width stretching the major part of the Mexican Gulf Coast with the probable exception of the plateau region of North Yucatan where favorable structures may exist at great depths in contrast to formations in South Yucatan which are considered favorable and at a depth economically accessible; the western part of lower California as well as sections of the States of Sonora, Sinaloa, Nayarit, Oaxaca and Chiapas along the Pacific Coast, are considered probably petroliferous, while isolated signs of oil bearing lands exist in the States of Chihuahua, Durango, Coahuila, Nuevo Leon, Jalisco and Oaxaca.

Explorations have already been undertaken in some of these regions, although not in sufficient extension to have given conclusive results. Lately, the best and most co-ordinated and extensive plans combining geological studies with geophysical methods are being employed for exploration with marked success. Some formal drilling operations are included as part of the survey in northern Coahuila, Tamaulipas and Nuevo Leon. In several of these regions good shows, which justify exploration, have been found.

There is every reason to believe that the Mexican oil bearing fields along the north Gulf Coast extend over a far greater area than has yet been discovered, as the pools in this region have all been found in practically the same formations and at considerable distances apart. The most important being found in cavernous fractured limestone formations at a depth in the majority of cases between 600 and 700 meters.

### Producing Sands

In the Isthmus of Tehuantepec region, the producing wells have been located in sands above salt domes between 850 to 1,000 meters, and while less productive than those of north Vera Cruz, the oil is of the finest quality. During operations carried on in Tehuantepec Isthmus some 10 years ago, oil was found at an average depth of 300 meters. In one field, that of Tecuanapa, discovered in 1910 and still producing, petroleum was found at 134 meters.

In the northern region of the State of Vera Cruz, oil is produced from lower Cretaceous formation and from the lower part of the upper Cretaceous formation. The first of these formations commonly known as Tamasopo consists of limestones, while the second is formed of limestones with shales, clays and argillaceous limestones known as San Felipe. Inside the upper Cretaceous, according to some geologists, or in the Eocene, according to others, are some formations above the San Felipe, known by the names of Mendez or Papagayos and Velasco. Few pools have been found in these formations and those few are undoubtedly of less importance than the others. The general designation of Tamasopo limestones, applied to formations in which the great oil producing areas of north Vera Cruz have been located, originated from the fact that some of these limestones outcrop in the Tamasopo Canyon at the place where the San Luis to Tampico railway descends steadily toward the coast and where they are perfectly visible and the object of curiosity to all travelers.

### Classification of Mexican Oils

Oil produced today in Mexico is classified in two main groups: "Heavy crude" and "light crude," the first having a specific gravity of 0.95 or above (17° Be. or less), the second of a specific gravity under 0.95 (more than 17° Be.).

The greater part of heavy crude oil comes from the fields situated in the Panuco and Tamesi River Basins, that is, from the region extending over eastern San Luis Potosi, southern Tamaulipas and northern Vera Cruz. It is also obtained though in smaller quantities from the San Jeronimo Field, along the shores of the Tamiahua Lake and in the Molino Field to the left bank of the Tuxpam River. Light oil is obtained from the San Pedro Field in eastern San Luis Potsi; from the borders of the Tamiahua Lake to the south of the Tuxpam River in the Tuxpam region; from Mecatepec, near Cazones River; from the Furbero fields in the Papantla district; from the Isthmus of Tehuantepec and from the fields in central Tabasco and northern Chiapas.

Heavy petroleums coming from Tamesi and Panuco Basin Fields are in turn divided into two groups; those of the north and west sections which are excessively thick and viscous with a specific gravity over 0.98, and those of the southeast Topila and Quiebrahacha, less viscous than the former and with an average specific gravity of 0.96. Both oils have an asphalt base. The light oils all have a paraffin base, those of the Isthmus of Tehuantepec, of Tobasco and Chiapas being specially light and very rich in lubricants.

### Refining of Mexican Oils

Formerly, Mexican heavy petroleum was used as fuel or at least it was subjected to only a slight refining process whereby small portions of its lightest constituents were separated and fuel oil and asphalt obtained; later it was fully proved that much more valuable products could be obtained by a thorough distillation principally by means of the cracking process. This results in a fine quality of gasoline with antiknock properties, lubricating oils and other products. All kinds of products for industrial uses, from the lightest gasolines to the heaviest by-products such as lubricating greases, paraffins, asphalt and coke are obtained from Mexican light oil.

Mexico has 18 important refining plants, four of which are complete refining plants, four topping plants, nine absorption and gas lift plants and one asphalt plant. With two exceptions, these plants are all located in the Mexican Gulf Coast region near and within easy and rapid communication with the producing fields or the shipping and distributing centers. Two small refineries are located along the northern border, one in lower California, another in Sonora. The 18 plants have a joint daily refining capacity of 53,124 cubic meters (334,150 bbls.) and two of them are among the largest in the world. Some small plants located in the Panuco River Basin are operated for the purpose of manufacturing natural gasoline from the casinghead gas. In these and similar plants in the Tuxpam and Tehuantepec regions, processes known as condensation, compression, absorption and a combination of these processes, are employed, the absorption method being of greatest use, in a higher scale and with the best results, in the Tuxpam and Tehuantepec Fields.

Various attempts undertaken at different times mark the development of refining epoch in Mexico to the advanced point at which we find it today. The first attempt made in 1870 in the region now known as Furbero was on a very small scale and did not last long. Later in 1882, some stills were installed in the Tuxpam River region where oil from Cerro Viejo was refined. And again, a few years later, the fact that imported oil products paid heavy duties while crude oil paid low import duties gave rise to the wise decision to import the crude product with the purpose of refining in Mexico sufficient oil to meet domestic consumption. Thus, in 1886, a special small refinery was built in the city of Vera Cruz where oil imported from the United States of North America was refined. In the following year, the Pierce Oil Co. established in Vera Cruz their small refinery for the same purpose. This early Pierce refinery still exists but 10 years later the Pierce interests installed another one at the Port of Tampico.

### Refinery Output and Exports

The plants operating during 1929 showed the following results: 4,276,509 cubic meters (26,899,242 bbls.) of crude oil and unfinished oils 84.2 per cent of which was light crude; 3.8 per cent heavy crude and the remainder fuel oil, crude gasoline and other products were run to stills giving the following output. 4,135,915 cubic meters (26,014,905 bbls.) of by-products of which 4.2 per cent was crude gasoline, 12.4 per cent refined gasoline, 2.6 per cent crude kerosene, 6.6 per cent refined kerosene, 11.1 per cent gas oil, 44.9 per cent fuel oil, 2.1 per cent lubricating oils, 0.7 per cent crude paraffin, 0.3 per cent refined paraffin, 3.1 per cent asphalt and 8.4 per cent various products.

Due to the protection and support accorded the refining industry in Mexico, the proportion of crude oil products exported has by degrees diminished; in about the same proportion oil products have increased in Mexico's export trade. Mexico, however, still exports large quantities of crude oil as can be seen from the figures for 1929, which show that out of a total of 4,298,827 cubic meters (27,039,622 bbls.) exported, 2,459,582 cubic meters (15,470,761 bbls.) were crude oil and the remainder fuel oil, gas oil, crude and refined gasolines, crude and refined kerosenes, lubricants and asphalts.

In 1929, as in previous years, a good part (56 per cent) went to the United States of North America, while of the remainder approximately 28 per cent went to Europe, the balance going to Central and South America, the West Indies, Asia, Africa and Australia.

Mexico, during the year of 1929, exported 4,298,827 cubic meters (27,039,622 bbls.) of crude oil and oil products, this amount being lower for the same reasons as were given in the matter of production, than in former comparative periods. During the first six months of this year, exportation came up to 2,154,198 cubic meters (13,549,905 bbls.).

Mexican oil is shipped from the ports of Tampico, Tuxpam and Puerto, Mexico, as well as through the custom house of Tapachula, near the Guatemala border line.

Oil loading stations for ships are located in all the above named ports and also at Vera Cruz on the Gulf Coast and at Salina Cruz Manzanillo y Guaymas on the Pacific Coast.

The Mexican Government, by special decree, has forbidden shipments being made along the open coast so that loading stations for export are no longer allowed as formerly at Puerto Lobos on the

## NOT MUCH DITCHING HERE

(C) P. and A. Photos.

**A small pipe line through the Arabian desert. Another one is planned which is to cost 700,000,000 marks.**

Gulf of Mexico. The terminals at that place are being dismantled.

Shipments of Mexican oil products, asphalt and crude oils to foreign countries have been going on irregularly for many years; continuous export and in really important quantities, however, date from about the middle of 1911 when Mexico began to send abroad enormous amounts in tankers. Exportation of oil began to climb up during that year and has continued since, keeping pace with our production, more or less 75 per cent of which has always gone to satisfy the needs of foreign markets, specially those of North America. Thus, only a small percentage of her own production remains in Mexico to satisfy home needs.

Of her own production of crude and refined oil during 1929, Mexico consumed 1,771,377 cubic meters (11,141,962 bbls.), 31 per cent was used by the various oil companies and 69 per cent was consumed in other industries, railroads, automobiles, tractors, transportation vehicles, lighting, highways, etc.

Besides this, during 1929, 200,000 cubic meters (1,200,000 bbls.) of crude and refined petroleum were imported for interior consumption, mainly in the northeast which is not near our own 2,000,000 cubic meters (12,600,000 bbls.).

**Domestic Consumption and Transportation**

In Mexico, just as in every country throughout the world, the consumption of gasoline has acquired great importance and continues on the increase, due specially to the fact that great new highways are everywhere being constructed, while the existing ones are being repaired and kept in good condition. Thus for instance consumption of gasoline which in 1925 was figured at 105,971,001 liters, had risen to 218,699,335 liters in 1928 and in 1929 has risen to 259,287,427 liters. In Mexico alone the number of automobiles—another index of the enormous progress in this direction—rose from some 35,000 four years ago to approximately over 70,000 today.

The greater part of the production from Mexican fields is transported by means of an extensive system of pipe lines figured in January, 1930, with 5,144 kilometers (3,194 miles), with a transporting capacity from the fields to distributing or loading stations of 457,338 cubic meters (12,876,656 bbls.) daily. This system is equipped with the most modern type pumping stations while the fields, terminals and refineries as well as distributing centers throughout the republic are well supplied with storage tanks, the majority being of steel. The report for January, 1930, gives a total of 2,459 steel tanks and 23 oil deposits of various types with a combined total capacity of 12,942,429 cubic meters (81,408,275 bbls.).

**Wells Drilled**

We have mentioned in another part of this article the number of wells drilled in Mexico before and after the promulgation of the political constitution now in force. The total number of wells drilled however, up to June 30 of this year, is 5,112 of which 2,378 were productive, almost all flowing wells, the majority of them of remarkable producing capacity. As a matter of fact some of Mexico's oil wells have exceeded all world records; big gushers with capacity of 7,900 and even of 15,900 cubic meters daily (50,000 and over 100,000 bbls.) are not very uncommon.

Taking a very conservative average, four years may be estimated as the lifetime of a Mexican well of normal production although a great number are still producing after more than 15 years.

During 1929, 114 wells with a total producing capacity of 111,182 bbls. daily were brought in, the figure for the first half of 1930 being 42 wells with a total production capacity of 31,959 bbls. daily.

Such are the main features in the history of oil in Mexico, which occupies such an important place at the present time. There remains only the economic aspect of its development.

**Mexican Industry Highly Profitable**

The oil industry in Mexico has been highly profitable as it is demonstrated by a simple comparison between the profits obtained and the invested capital. With an inversion in our oil industry amount (up to June 30, 1930) to $930,900,000 Mexican currency, a total production of 251,233,620 cubic meters (1,580,325,466 bbls.) with a commercial value of $2,863,024,125 Mexican currency, has been obtained; not taking into account the enormous profits obtained in refining oil, and the installations, wells, etc., which are still in very good condition and which remain as an asset to the industry. What this signifies can be well understood if we take into account that the United States of America with a total inversion, which up to December 31, 1928, amounted to $12,000,000,000, a total production of $15,421,000,000 worth has been obtained in a period of 70 years; that is a return of 1.3 per unit of inversion, while in Mexico the return per unit has been 3.1.

**Taxes**

Various taxes have to be paid in the course of exploiting the Mexican fields (technical inspection, drilling, income tax, etc.) amounting at present to $0.63 Mexican currency per cubic meter ($0.10 Mexican currency per barrel), and when the petroleum leaves the country it is subjected to other taxes, such as those of production, exportation, etc., which totaled in July of this year $2.96 Mexican currency per cubic meter ($0.47 Mexican currency per barrel) for light oil, and $1.80 Mexican currency per cubic meter ($0.29 Mexican currency per barrel) for heavy crude. This makes, in case of exportation a total of taxes for light crude of $3.59 Mexican currency per cubic meter ($0.57 Mexican currency per barrel), and for heavy crude of $2.43 Mexican currency per cubic meter ($0.39 Mexican currency per barrel).

Now, in the same month of July, the quotations for our oils (f.o.b.) not including taxes, in our principal oil port, Tampico, was of $14.47 Mexican currency per cubic meter ($2.30 Mexican currency per barrel) for heavy crude, and $11.70 Mexican currency per cubic meter ($1.86 Mexican currency per barrel) for light crude. Thus it is seen that the total amount of taxes which were paid in July of this year for the exportation of light crude was 30.7 per cent of the value of this oil and for heavy crude it was 16.8 per cent of the value of the same.

**Oil Concessions**

We will now consider the conditions imposed for the system of concessions that was established by our legislation for the exploration of oil.

It is obvious that these conditions are more benign than those required by legislations of the most important oil countries. In fact, in Mexico, and in accordance with our present legislation, it is possible to obtain for oil purposes, great extensions of land on easy terms which make it feasible to invest freely the main part of the capital available in exploration and exploitation works, since the deposit per hectare which our law demands is very small, and no rent is paid to the Government, as it happens in other countries. Neither is any royalty paid to the Government, although 5 per cent of the production must be paid to the owner of the land, as an indemnity (the nation is the owner of the subsoil), this 5 per cent is less than a half of the royalty which must be paid in other countries.

In Mexico it is possible to obtain oil grants covering an area of 100,000 hectares in explored lands and up to 200,000 hectares in unexplored territories. The concessions are granted for a period of 30 years, which is obviously a long term.

In order that these concessions may fulfill the purpose for which they were granted, our law imposes on the grantee the obligation of maintaining assessment works requiring him, to make an annual inversion of $1 to $5 Mexican currency per hectare in lands that have been explored, and of half that amount for unexplored regions. This obligation ceases as soon as commercial production is obtained. These investments that our concessionaries must make and which they would necessarily have to make to a larger or lesser degree in any other country, benefit them directly and are, undoubtedly, smaller than the rents which are paid in other countries, and which do not have to be paid here (see the article entitled "Las Ventajas Economicas De La Legislacion Petrolera Mexicana" Economical Advantages of Mexican Petroleum Legislation), by Engineer Manual J. Zevada, Petroleum Bulletin of December, 1928.

In the foregoing we have tried to present in its general aspect the situation of the petroleum exploitation in Mexico, based in figures and proven facts. It is obvious from what has been stated that the above mentioned exploitation has been very profitable, in spite of the short period in which it has been developed, and in spite, also, of the hard trials to which it has been submitted in various periods, and of the crisis that has prevailed during the last years. What has been obtained thus far, and the universally recognized importance of the oil resources of Mexico, exploited only to a minimum extent, fully guarantee a bright future for our industry.

## GOVERNMENT RESTRICTS ARGENTINE OPERATIONS

(Continued from Page 114)

latter part of 1924. As a result of this situation, foreign companies have been limited to the development of lands previously held, pending some modification of the government's policy with respect to oil development.

Standard Oil Co. of New Jersey has been a pioneer in the Argentine, and has a limited production in the Plaza Huincul and Salta Fields. The company, through its Argentine subsidiary, operates a 500-bbl. refinery in the Salta area, the production of this plant being marketed locally. Adjacent to the Salta Field, across the Bolivian border, Standard has concessions aggregating close to 2,500,000 acres, where considerable wildcatting has been carried on. Proving up of this area, which appears probable, will necessitate the construction of a pipe line to hook up with a navigable branch of the Plata River.

**Y.P.F. Leading Interest**

The Y.P.F., however, is by far the leading interest in Argentina, accounting for more than 50 per cent of the country's output of crude and refined products. The government company has close to 900 wells in production, yielding slightly under 6,000,000 bbls. of crude per year. Most of the operations of the Y.P.F. are concentrated in the Commodoro Rivadavia Field, where petroleum was first discovered 23 years ago. The government owned company operates refineries at La Plata, in the Buenos Aires district, and at Bahia Blanca.

The Cia. Ferrocarrilera de Petroleo, S. A., ranks second to the Y.P.F. in importance in Argentina. This company is owned by the British railway system operated in Argentina, and has more than 100 wells in production. Production of this company last year was in excess of 1,500,000 bbls.

Astra-Eastern, an independent company, is the largest private-owned Argentinian company operating in the country. This company has production in the Commodoro Rivadavia Field and in 1929 produced approximately 750,000 bbls. of crude. The company also operates in the Plaza Huincul Field, and has a refining subsidiary, "Itaca," with a refinery at Campana, near Buenos Aires.

**New Refinery at Buenos Aires**

Diadema Argentina de Petroleo, S. A., a subsidiary of Royal Dutch-Shell, and Cia. Industrial y Commercial de Petroleo, S. A., subsidiary of Anglo-Persian Oil Co., both operate in the Commodoro Rivadavia Field, and last year had approximate production of 110,000 bbls. and 550,000 bbls., respectively. Diadema is now building its new refinery near Buenos Aires and is reported actively developing its properties at Commodoro Rivadavia in preparation for supplying this plant.

Standard Oil Co. of New Jersey and Gulf have both drilled in the Commodoro Rivadavia Field, but were forced to abandon operations after having failed to develop any production.

Y.P.F., Standard Oil Co. of New Jersey and several independent Argentine companies are now conducting drilling operations in the newly discovered Mendoza Field, which is north of Plaza Huincul, close to the western border of Argentina, and which has some promising showings.

**Drilling Methods**

Drilling methods in Argentina thus far have been by the older type of drilling equipment, although rotary drills are now coming into greater use as a result of the employment of larger numbers of American drillers by Y.P.F. and other Argentine companies. To date, production in the Commodoro Rivadavia Field has not gone below the 3,200-foot level, while at Plaza Huincul the maximum depth attained by producers has been under 4,200 feet.

Drilling operations in the Commodoro Rivadavia Field, while now more modernized than in former years, are still relatively simple. A simple fishtail bit is used on the rotary equipment. The field has now been electrified, and gas engine driven compressors previously used have been generally replaced by electric compressors. No gas or air lift is used in the field, production being attained by swabbing and pumping.

The Y. P. F. has taken steps to modernize its activities in other divisions of the industry as well. A pipe line is being constructed of 10-inch seamless pipe between the Plaza Huincul Field and Bahia Blanca, where a new cracking plant is being built.

**Foreign Competition Excluded**

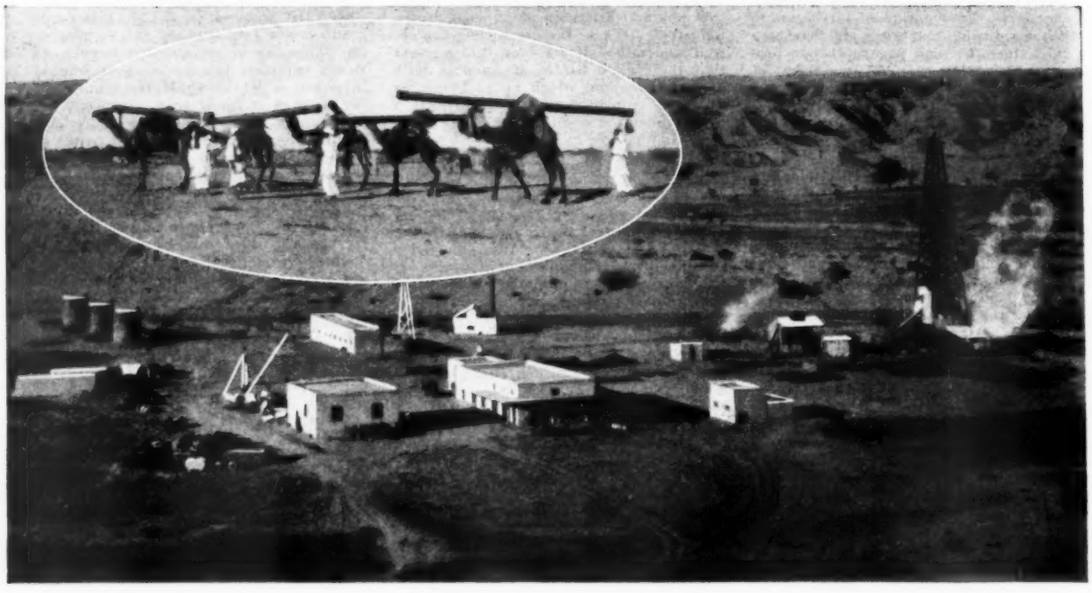
With more than 99 per cent of Argentina's potential oil lands now classed as "government reserves," effectively shutting out foreign competition, the Y.P.F. has been extending and modernizing its field work. The government company this year, for the first time, has instituted extensive geological operations, utilizing both the seismograph and torsion balance in its geophysical activities.

American oil companies are still greatly interested in the situation in the Argentine, and it is probable that any material liberalization of the oil laws of that country would be followed by extensive leasing by American companies. With world petroleum conditions in their

## PROMINENT RUSSIAN OIL FIELD

Bibi Eibat oil field near Baku.

# Sullivan Drills now making 25-in. holes



A Sullivan drilling outfit was transported 700 miles into India to carry an abandoned hole down to 6,000 feet.

***Starting with 21½-in. casing, Sullivan Drills are able to carry hole two strings farther than other equipment. Substantial savings now available on deep holes.***

Oil men all over the world look with keen interest at the big holes now being drilled with Sullivan Core Drills. Their ability to make 25-in. holes lends new significance to all the economies of core drilling.

One of these holes was started recently in New Zealand. It was spudded in with a 25-in. bit. Twenty-two days later 303 feet of 21½-in. casing was cemented through difficult agglomerates. Two months and nine days later, 16-in. casing was cemented at 1,956 feet.

There are two important reasons why oil men would rather drill the wildcat with a Sullivan Drill.

(1) A hole drilled with a Sullivan can always be carried two strings of casing farther than the same hole drilled with other equipment. This is due to the ability of the Diamond Drill to work through smaller casing.

(2) If the driller knows in advance how far he is going to drill, he can start with a smaller hole by using a Sullivan Drill, greatly reducing the cost of the hole.

*SULLIVAN CORE DRILLS Now Offer 6 Advantages Over Other Equipment for Deep Tests*

(1) With a Sullivan Drill on the hole, there is no chance of passing up an oil showing. The presence or absence of oil is revealed positively in the drill cores.

(2) You pick safe seats for casing, by coring.

(3) You need only one drill for both hard and soft materials.

(4) You are sure of finishing a deep hole with the original drill.

(5) You are sure of a straight hole. Sensitive control of pressure on the bit enables the Sullivan Drill to cut straight through even steeply tilted rocks. Sensitive control also prevents twistoffs.

(6) Gas pressure is controlled. Wells have been completed against pressures of 3,000 lbs. to the inch.

*Core drilling on deep holes, and for structure testing is developing rapidly. If you do not have the latest information send for Booklets 85-H (Deep Tests and Wildcats), 85-K (Structure Testing).*

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present state, however, American companies are not seriously perturbed over the situation in the Argentine.

**Argentine Production**

The importance of the government subsidy in the Argentine petroleum industry is illustrated by the following figures by the Argentine Department of Mines covering petroleum production in the two principal fields of the republic for the 10 years, 1920-1929, inclusive, with comparisons between the output of the government company and private-owned petroleum concerns:

COMMODORO RIVADAVIA

| Year | State (Metric tons) | Private Cos. (Metric tons) | Total (Metric tons) |
|---|---|---|---|
| 1920 | 226,550 | 35,340 | 261,800 |
| 1921 | 277,810 | 48,180 | 325,990 |
| 1922 | 343,910 | 106,610 | 450,520 |
| 1923 | 400,050 | 122,770 | 522,820 |
| 1924 | 544,370 | 182,210 | 726,580 |
| 1925 | 609,270 | 323,870 | 933,140 |
| 1926 | 720,240 | 492,250 | 1,212,490 |
| 1927 | 792,360 | 494,600 | 1,286,960 |
| 1928 | 811,930 | 491,160 | 1,303,090 |
| 1929 | 807,210 | 490,300 | 1,297,510 |

PLAZA HUINCUL

| | | | |
|---|---|---|---|
| 1920 | 610 | ..... | 610 |
| 1921 | 920 | ..... | 920 |
| 1922 | 4,980 | ..... | 4,980 |
| 1923 | 7,140 | 250 | 7,390 |
| 1924 | 9,550 | 4,570 | 14,120 |
| 1925 | 14,760 | 4,160 | 18,920 |
| 1926 | 23,500 | 9,820 | 33,320 |
| 1927 | 30,510 | 51,550 | 82,060 |
| 1928 | 47,530 | 72,590 | 121,120 |
| 1929 | 61,850 | 100,820 | 162,670 |

TOTAL*

| Year | State (Metric tons) | Private Cos. (Metric tons) | Total (Metric tons) | % Increase |
|---|---|---|---|---|
| 1920 | 227,160 | 35,340 | 262,500 | 24 2 |
| 1921 | 278,730 | 48,180 | 326,910 | 24 5 |
| 1922 | 348,890 | 106,610 | 455,500 | 39.3 |
| 1923 | 407,190 | 123,020 | 530,210 | 16 4 |
| 1924 | 553,920 | 186,780 | 740,700 | 39 7 |
| 1925 | 624,030 | 328,030 | 952,060 | 28.5 |
| 1926 | 743,740 | 504,290 | 1,248,030 | 31.1 |
| 1927 | 822,870 | 549,090 | 1,371,960 | 10.1 |
| 1928 | 860,600 | 581,460 | 1,442,060 | 5.1 |
| 1929 | 872,170 | 620,900 | 1,493,070 | 3.5 |

*Includes Salta yield and small sundries.

## SOUTH AMERICA LOOMS AS WORLD COMPETITOR

(Continued from Page 114)

bbls. for 1929 and 54,362 bbls. for 1928. Liberalization of the Colombia petroleum laws is looked for, and this will probably stimulate production to some extent, but, in view of the general world position of the industry, leading companies with substantial acreage in Colombia are expected to retard development until market conditions improve.

**PERU**

Peruvian production of crude oil during the first quarter of the year gained over that for the corresponding months of 1929, and the increase was carried into the second quarter. During the third quarter, however, the production pendulum swung in the other direction, and output dropped substantially off to average 1928 levels. Daily average production for Peru at the close of October amounted to 31,700 bbls. daily, against an average daily production of 36,429 bbls. for 1929 and 31,294 bbls. for 1928. Peak output for Peru this year, attained during the week ended January 11, and holding until the week ended February 8, was 37,100 bbls. daily.

International Petroleum Co., Ltd., (Standard Oil Co. of New Jersey), largely dominates the petroleum industry in Peru at the present time, and development is being carried forward in orderly fashion, in keeping with world oil market conditions.

**TRINIDAD**

British companies active in Trinidad have continued their expansion program, and the output of the island has gained substantially this year. Development work continues along relatively extensive lines, with considerable new drilling, and indications point to continued increases in output during the next several years.

Daily average output in Trinidad at the close of October amounted to 27,000 bbls., as compared with 22,704 bbls. for the full year 1929 and 18,553 bbls. in 1928. Refining capacity at Trinidad is being increased in line with the greater output of crude.

**ECUADOR**

Relatively little attention has been attracted by the Ecuadorian oil industry, but development work has continued along steady lines, and current output is substantially 60 per cent in excess of that two years ago.

Daily average output of crude petroleum in Ecuador at the close of October amounted to 4,000 bbls. daily, against 3,507 bbls. for the full year 1929 and 2,774 bbls. per day for 1928. Peak output for Ecuador was 4,350 bbls. per day, attained during the week ended April 26, this year.

**Summary**

While Venezuela and Trinidad have continued to expand their production of crude petroleum this year, declines in output in Mexico and in other South American producing countries have been more than sufficient to offset these gains. Thus, combined daily average crude output of Mexico, Venezuela, Colombia, Peru, Trinidad and Ecuador at the close of October was 581,683 bbls., compared with an average daily output of 615,119 bbls. for these countries during the full year 1929 and 539,358 bbls. per day for the full year 1928.

Thus, although South American operators have come in for considerable censure for failure to co-operate with producers in the United States in crude production curtailment, figures for the first nine months of the year show that Mexico, and South America, as a whole, cut their crude petroleum production by 5.4 per cent, while producers in the United States were curtailing output by approximately 14 per cent.

Officials of leading companies operating in South America are not inclined to comment for publication on the oil tariff situation brought about by the demand of a number of independent American producers for a protective duty on imports of crude oil and refined products, but it is known that serious consideration is being given the possibility of such a contingency.

It is reliably reported that in the event of the imposition of such an import duty, considerable new refinery construction would be witnessed in the Caribbean area and that crude produced in Venezuela and other South American countries and now shipped to Gulf and East Coast refineries for treatment would be refined close to the field, and the product of these refineries marketed abroad. Thus, while imports of both crude and refined petroleum would be sharply curtailed by an import duty, such a tariff would react to the disadvantage of refiners in this country engaged in export operations.

## DEVELOPMENT OF OIL INDUSTRY IN RUMANIA

(Continued from Page 122)

opment work but in 1917, when destroyed equipment was repaired, the drilling program was resumed. During the 10 years which followed the setback occasioned by the war record figures were established in each succeeding year.

In 1926 drilling reached 882,720 feet—a figure never previously attained in the Rumanian fields. Price reductions initiated in 1927 and the large amounts of Russian oil which began to be offered for sale on European markets about that time brought about a depreciation in the values of oil products, which resulted in a substantial lowering of the returns to companies. In 1928 the operators succeeded in lowering production costs to some extent, and there was likewise some improvement in the prices of refined products, but still the situation did not warrant an increase in drilling activities, notwithstanding the fact that the yield of the new fields opened for exploitation proved to be favorable. During 1929 about 990,000 feet were drilled—a new record in the history of the local industry, in spite of the fact that oil prices during the year were far from satisfactory.

**Cost of Drilling and Production of Wells**

The cost of drilling in Rumania has been estimated at $54 a meter, and the 1929 drilling of 300,000 meters, therefore, required a capital investment of about $16,200,000.

**Power-Operated Wells in Rumania, September 30, 1929**

| District— | Abandoned | Suspended | Under construction | Operating |
|---|---|---|---|---|
| Prahova | 104 | 420 | 261 | 1,168 |
| Dambovitza | 9 | 56 | 41 | 164 |
| Buzau | 15 | 22 | 17 | 105 |
| Bacau | 4 | 25 | 22 | 141 |
| Other districts | 17 | ... | 1 | .... |
| Total | 149 | 523 | 342 | 1,578 |

**Continued Increase in Production**

Results of the government's public auctions of about 1,000 acres of oil lands in September and October, 1929, show that there is a general anticipation of increase in crude production. Notwithstanding the crisis in the oil industry as a result of export and domestic prices, which yield insufficient returns, the government granted concessions for 660 acres of oil lands, for which it obtained a total price of $1,474,416, or an average of $2,234 an acre, in addition to the royalties in kind as set forth in the mining law, and to the obligation on the part of the concessionaires to carry on explorations on state lands not proved oil-bearing at their own expense.

As noted above, the leading oil-producing districts of Rumania are Prahova, Dambovitza, Buzau and Bacau. In the past three years Prahova has furnished about 70 per cent of the total Rumanian crude output and Dambovitza about 25 per cent; the two accounted for from 95 to 97 per cent of the total each year. The most important oil field of the country is Moreni in the district of Prahova, which gave about 33 per cent of the total in 1929. It is followed by Ceptura, also in Prahova, which contributed 14 per cent of the total. Gura-Ocnitei and Ochiuri, in Dambovitza, furnished 12 and 11 per cent, respectively.

**Increase Since 1904**

The existence of oil in Rumania was noted as early as the seventeenth century, but it was not until 1857 that actual production was initiated. Until 1903 the industry remained in a primitive state of development, but in 1904, with the discovery of the Moreni and Baicoi Fields, there was established for Rumania the reputation of possessing one of the richest oil-bearing regions in the world, and a new phase of development began.

Crude oil production increased uninterruptedly after 1904 until the outbreak of war. The record figure of production before the war was reached in 1913, with 13,667,881 bbls., compared with 3,629,068 bbls. produced in 1904—an increase of 255 per cent within a period of 10 years. After the restrictions caused by war conditions a regular annual increase reappeared, beginning in 1924 and leaving the following record:

**Increase in Rumanian Crude Oil Production**

| Year— | Output (bbls.) | Per cent increase over preceding year |
|---|---|---|
| 1924 | 13,421,947 | 22 |
| 1925 | 16,794,654 | 25 |
| 1926 | 23,499,635 | 39.9 |
| 1927 | 26,544,860 | 13 |
| 1928 | 30,946,922 | 16.6 |
| 1929* | *34,930,000 | *12 |

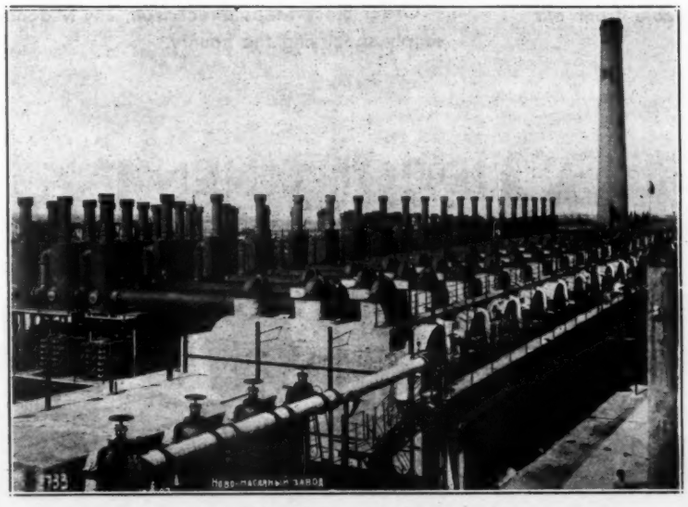
*Estimated.

**National Origin of Producing Companies**

In 1928 approximately 24.5 per cent of the Rumanian output of crude was produced by companies having purely national capital, 41.5 per cent by companies with purely foreign capital, and the rest, 34 per cent, by companies with mixed Rumanian and foreign financial backing.

Among the 17 leading producing companies only 2 are purely Rumanian controlled undertakings — Creditul Minier and Petrolul Romanesc. Three—Unirea (Phoenix Oil), Sondrum (Hamilton Concessions, Ltd.), and Craiova (Kern-Romano, Ltd.)—are entirely British; five—Colombia, Foraky Romaneasca, Petrolmina, Soc. Roumano-Belge de Petrole, and Starnaphta—are entirely French or Belgian. Astra Romana is entirely British-Dutch, another company is purely American, and another Italian, while the remaining four—Steaua Romana, Concordia-Sirius, I.R.D.P., and Romano-Africana—are British, French, Belgian, and Rumanian. Rumanian interests are more important in the Steaua Romana and I.R.D.P., the Concordia-Sirius is overwhelmingly French, while the Romano-Africana is British.

## REFINERY OPERATING IN RUSSIA



Continuous shell still battery oil refineries of Azneft, Baku, U.S.S.R.

## RUMANIA IS SEEN AS COMPETITIVE FORCE

(Continued from Page 122)

sene, with 216,250 bbls., accounted for the general increase in consumption.

**Domestic Use Hampered**

"The availibility of oil products and their relative cheapness should stimulate consumption in Rumania, although there are various obstacles to a pronounced increase. Rumania has important deposits of coal, particularly lignite, which is used as fuel by the railways and many industrial plants in the country. Natural gas, exclusively, is used as fuel in the region of its production in Transylvania, and, in fact, the establishment of many industries in this province is attributed solely to the availability of methane gas.

"Another important factor restricting the demand for oil products in Rumania is an abundance of firewood. Nearly one-fourth of the country's area is covered by forests, and for domestic heating firewood is used almost exclusively, while many industrial undertakings, and often even the railways, use it as fuel. Firewood has the local advantage over oil products of being accessible to a far greater proportion of the population, since oil production is confined to a small area.

"The lack of adequate transportation facilities constitutes another important obstacle to the development of local oil

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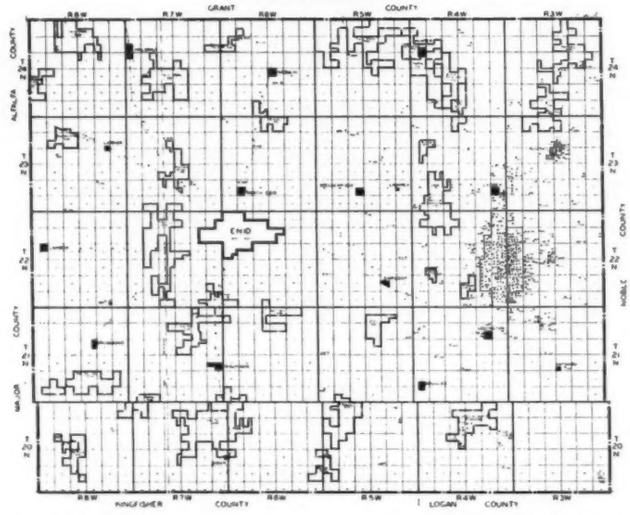


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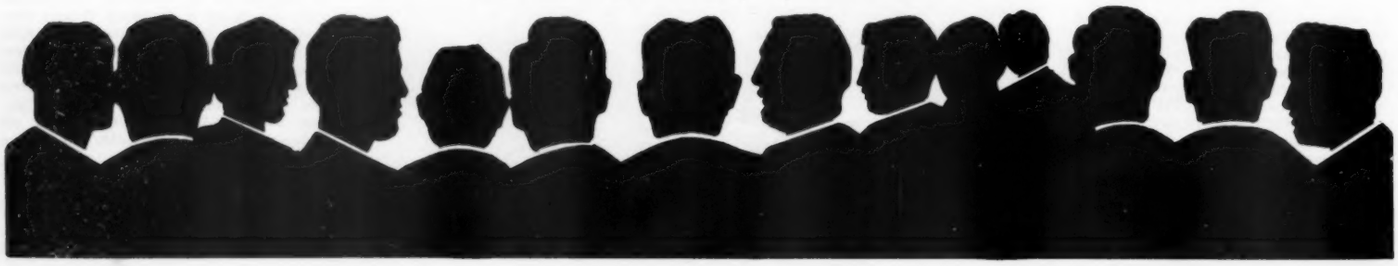

consumption. The national highways of Rumania are generally in poor condition, while the departmental and communal roads are still worse and do not permit an efficient distribution of oil products, which, consequently, accumulate in the refineries.

**Exports Important**

"As crude oil production is increasing continuously, while the domestic market is able to absorb only a small part of the growing surplus, the greater part of Rumanian oil products must necessarily be exported. The exports advanced from 7,460,511 bbls. in 1913 to 11,494,461 bbls. in 1926, 14,164,745 bbls. in 1927, and 17,301,648 bbls. in 1928. The 1928 figure represents an increase of 228 per cent over that for 1913. Gasoline, kerosene, and fuel oil have practically equal shares in the total exports; in 1928 they formed almost 90 per cent of the entire shipments. Most of the balance was gas oil. Exports of crude oil were prohibited after the war, until the enactment of the 1929 mining legislation, which provides for its exportation under certain specified conditions."

**Increased Competition**

Rumania has substantially increased her shipments of refined products into European markets thus far in 1930, and this is being reflected in sharp Rumanian competition for business which in previous years has been placed in the United States. For example, Rumanian shipments of refined products into Great Britain alone during the first six months of 1930 aggregated 42,205,000 gallons, a substantial increase over the 27,702,000 gallons similarly shipped in the first half of 1929.

Substantial progress is being made in the development of the natural gas industry in Rumania, numerous important deposits being known. The Sarmashel, Saros and Bazna natural gas fields in Transylvania produce a gas with methane content from 97 to 99 per cent, exceeding that of any other known methane gas except that drawn from some of the fields in the United States. This gas is free of hydrogen sulphide and has calorific value of approximately 8,600 calories per cubic meter, and its combustion value is greatly enhanced by the absence of dust, tar, and other impurities. This gas is produced independent of oil. Only about 1,200 square miles of the thousands of square miles of gas fields in the Transylvania area are now being developed. The average production of the Transylvania methane gas fields is estimated at approximately 75,000,000,000 feet per annum, and pipe line systems have been built to transport this gas to industrial consuming centers.

Steps are now being taken to develop a domestic market for natural gas in Rumania, Unirea (subsidiary of the British Phoenix Oil & Transport Co.) having during the past year completed a pipe line and gas distribution system making available in the city of Ploesti for household consumption stripped casinghead gas. Similar developments in other Rumanian towns and cities are looked for.

Considerable progress has been made in the modernization of Rumanian refineries this year, and refinery practice in that country is now closer to a par with the United States than ever before in the history of the Rumanian oil industry. There have been important improvements in the fractionation practice in Rumania this year, with fuel economy, adoption of improved distillation processes, cracking and augmentation of yields from crude the principal achievements of the Rumanian industry. Heavy overproduction of fuel oil in Rumania has created a problem similar to that faced by the American industry, and, as in the United States, this problem is being met and overcome by the intensification of cracking operations. Lacking of adequate capital has kept many of the companies from installing cracking units, but with the rationalization of the industry proceeding satisfactorily, it is expected that the difficulties will be gradually overcome and the modernization of the Rumanian oil industry show steady progress.

## RUSSIA'S FIVE-YEAR PROGRAM IN OIL

(Continued from Page 128)

cleaned and when completed will be capped.

Of the smaller fields, Kara-Chukhur only deserves mention, according to Soviet estimation, and here an output of 600,000 tons is scheduled for 1932-33. However, development here has been very badly carried out and of the several wells drilled only one has given satisfactory results.

**New Fields**

The production of new fields—Bibi Eibat Bay, Kara-Chukhur and Solbaz, a part of Surakhany—has not been satisfactory. The figures year by year are as follows:

| | Tons |
|---|---|
| 1921-22 | 22,600 |
| 1922-23 | 140,400 |
| 1923-24 | 345,300 |
| 1924-25 | 505,700 |
| 1925-26 | 802,800 |
| 1926-27 | 997,000 |
| 1927-28 | 1,153,000 |
| 1928-29 | 1,052,100 |

More oil could have been obtained from these new fields if more careful drilling had been done there.

Baku wells are good producers. The monthly average for new wells is 1,487 tons, old wells 234 tons. New wells at Surakhany give as much as 3,000 tons a month and old wells 818 tons.

The daily output of all the fields was about 25,000 tons until February, 1930, since when it has been steady at about 30,000 tons a day.

Considerable difficulties are experienced owing to lack of plant and material, insufficient technical staff and inefficient labor. The organization of supplies appears to be one of the most difficult tasks of this nationalized industry, especially as all the supplies of material and most of the plant come from similarly nationalized industries.

## GROZNY OIL FIELD

The Grozny oil fields are becoming increasingly important; they rank second after Baku in production, giving 33½ per cent of the total output of Russia. This is all accounted for by the new Grozny fields, where good spouters have been brought in.

The first well at the so-called old Grozny fields was drilled in 1893 by Akhverdoff and by 1896 the production was 300,000 tons per annum. The new Grozny fields commenced producing in 1913. The war delayed proper development, the revolution still more and in 1918 the new Grozny fields were destroyed by fire.

The Soviets gained possession of the fields in 1920 and the decree of nationalization was issued on April 28, 1920. Until 1923-24 proper work was not organized but from that date substantial annual increase of production has been registered and this year the output will be over 5,500,000 tons.

**Old Grozny Fields**

The output of these fields since the nationalization has been as follows (in tons):

| Year— | Total prod. | Of which gushers |
|---|---|---|
| 1920-21 | 710,372 | 382,606 |
| 1921-22 | 741,933 | 404,954 |
| 1922-23 | 681,977 | 275,464 |
| 1923-24 | 667,247 | 263,353 |
| 1924-25 | 923,470 | 513,676 |
| 1925-26 | 1,009,026 | 571,207 |
| 1926-27 | 920,834 | 446,267 |
| 1927-28 | 708,310 | 288,800 |
| 1928-29 | 634,722 | 199,134 |
| 1929-30 for 9 months | 459,097 | 119,561 |

The gushers were mostly obtained at a part of the old fields called "Solianaya Balka"; these gushers have lately fallen off considerably. The mechanical production has been keeping steady for the past eight years and is more or less reliable, whereas, as seen, gusher production has fallen very low. No hopes of an increased production are held out here. The percentage of water in the wells is large and on the mechanically worked fields amounts to 75 per cent of the liquid raised. The number of producing wells has been increased from 103 in 1920 to 419 in 1928-29. The average daily output of the wells has gone down considerably—from 11.4 tons in 1925 to 5.8 tons in 1929. The main producing strata are the eleventh at Solianaya Balka and the sixteenth and fourteenth—the output of the eleven stratum has fallen off from 615,000 tons in 1925-26 to 250,000 tons in 1928-29.

**New Grozny Fields**

These fields, which are situated at New Aldy, have since the nationalization increased their production very rapidly, thanks to prolific gushers. The output has been as follows (in tons):

| Year— | Total prod. | Of which gushers |
|---|---|---|
| 1920-21 | 439,413 | 322,407 |
| 1921-22 | 671,017 | 343,864 |
| 1922-23 | 762,633 | 365,202 |
| 1923-24 | 912,316 | 603,953 |
| 1924-25 | 1,043,485 | 716,729 |
| 1925-26 | 1,321,740 | 976,729 |
| 1926-27 | 2,011,084 | 1,615,326 |
| 1927-28 | 2,799,606 | 2,362,690 |
| 1928-29 | 3,711,031 | 3,192,810 |
| 1929-30 for 9 months | 3,555,395 | 3,132,877 |

The Grozny Oil Trust may be congratulated on the way it has worked these new fields. The output is increasing, the percentage of water is not large, the spouters are well under control. The fields had not been exploited much by the old owners, as work was only started in 1912 and during the war and revolution not much work could be done. The fire in 1918 did not do much damage.

The production of these fields is 85 per cent gusher oil, a production liable to fluctuations. The main output is obtained from the sixteenth stratum, which gives 60 per cent of the total, and the thirteenth stratum, which provides 23 per cent of the total quantity.

At the time of the nationalization the number of producing wells was 14; by 1928-29 the number had been increased to 168, of which 49 were gushers and 119 mechanically producing wells.

**Voznessensk Field**

Production was commenced here in 1913 but nothing of importance was done here during the old regime. The Soviets have during the 10 years of their possession produced 113,000 tons of oil. For the first six years little work was done and the output was kept up at 2,000 to 5,000 tons per annum. For recent years the production has been higher, namely:

| | |
|---|---|
| 1926-27 | 15,258 tons |
| 1927-28 | 20,349 tons |
| 1928-29 | 24,594 tons |
| 1929-30 for 9 months | 25,188 tons |

The number of wells has been increased from 3 to 20. Most of the oil is obtained from the third stratum (60 per cent) and the percentage of water is about 30 per cent.

In connection with the five-year plan, the output of this district is variously estimated at 100,000 tons and 400,000 tons in 1932-33.

Prospecting generally has been neglected at Grozny. A lot of the territory east of Grozny is considered as prolific as the new Grozny fields. At Bragoony, 35 kilometers east of Grozny, oil has been struck. Electric prospecting is being introduced by an engineer from Alsace.

## MAIKOP FIELDS

The Maikop fields came into prominence in 1909, when there was a great boom. The results proved disappointing, only a small part of the field gave a production, which was not large. The pool discovered in 1910 is now practically exhausted.

The Soviets secured the fields in 1920 As elsewhere, little work was done during the first few years, in 1925 production was increased. In 1928 a new pool was discovered and a gusher brought in. For the nine months of the current financial year the output is 376,000 tons, a great increase.

The Soviets have been very fortunate in striking this pool and great hopes are held out of an increased output.

These fields are situated nearer to the Black Sea than either Baku or Grozny and are therefore important for supplying southwestern Russia and for export.

**Production Figures**

The main Maikop fields (Shirvansky and Apsheronsky) have given the following production since the fields were nationalized in 1920 (in tons):

| Year— | Mechanical output Light oil | Mechanical output Heavy oil | Gushers light oil | Total |
|---|---|---|---|---|
| 1920-21 | 28,481 | 6,065 | ..... | 34,546 |
| 1921-22 | 32,870 | 6,833 | ..... | 39,703 |
| 1922-23 | 23,326 | 7,620 | 8,211 | 39,157 |
| 1923-24 | 29,304 | 6,463 | 3,459 | 39,226 |
| 1924-25 | 55,634 | 9,458 | ..... | 65,092 |
| 1925-26 | 48,342 | 13,392 | ..... | 61,734 |
| 1926-27 | 48,634 | 16,052 | ..... | 64,686 |
| 1927-28 | 73,642 | 12,240 | 2,137 | 88,019 |
| 1928-29 | 52,116 | 4,882 | 81,167 | 138,165 |
| *1929-30 | 41,022 | | 335,041 | 376,063 |

*Nine months of 1930.

The number of producing wells in these fields has increased from 27 in 1920 to 46 in 1929.

The light oil produced has a strong gasoline base and contains 35 per cent gasoline. The output of heavy oil has fallen heavily, these wells give as much as 91 per cent water. The production of the light oil wells has a much smaller percentage of water, 10 per cent and under. Most of the output of light oil is obtained from seam or pool C2, which in 1928-29 gave nearly 60 per cent of the total output. Seams E1 and E3 also give a light good oil, but the quantity is much less than C2.

Professor Gubkin, a well-known geologist, estimates that the newly discovered pool at Maikop has a reserve of 20,000,000 to 25,000,000 tons. The forecasts of production at Maikop in connection with the five-year plan are as follows:

| | Tons |
|---|---|
| 1929-30 | 500,000 |
| 1930-31 | 1,200,000 |
| 1931-32 | 2,000,000 |
| 1932-33 | 2,500,000 |

The 1929-30 estimates will be realized, as for the first nine months the output has been 376,000 tons. But very intensive drilling will have to be undertaken to obtain the large output scheduled for future years.

Other fields of this area include the Khadizhensky Field. To date this has proved disappointing, about 17 wells have been drilled but the output of the whole of the 10 years of Soviet regime has only been 7,000 tons.

The Kalushsky fields are slightly more interesting, here 92,000 tons have been produced since 1920 and the annual output can now be reckoned at about 13,000 tons. The number of producing wells is seven, drilling still goes on in the hope of obtaining better results. Water is causing much difficulty, the percentage now being as high as 55.

The Ilsky fields have also so far proved disappointing—6,000 tons have been produced since 1920, omitting the years 1922 to 1926, when the fields were leased to a contractor. Drilling still continues.

At Kudako 12,000 tons of oil has been produced from 1920 to 1925, after which date no information is available. Drilling, however, continues.

At Chengelek, a field of the Kertch Peninsula, work has been suspended for some time.

## CANADA'S OIL IMPORTS

Imports of petroleum and refined petroleum into Canada for the first six months of 1930 totaled 17,165,905 bbls., according to the Canadian Department of Trade and Commerce.

Imports of crude during this period were 13,707,356 bbls., of which 9,819,956 bbls. came from the United States, 1,621,905 bbls. from Colombia, and the balance from Peru and Venezuela.

Gasoline imports into Canada for the first half of this year were 1,917,283 bbls.

## REFINING IN CHILE

The National Society of Mining of Chile has urged the government of that country to establish a petroleum distilling plant. The society in a recent communication to the Chilean government pointed out that during 1929 benzine imports into Chile totaled 73,700,000 kilograms; kerosene imports, 32,200,000 kilograms, and mineral lubricating oils, 13,000,000 kilograms.

# Japan Is Anxious to Secure Oil Supply

## Crude Production Being Stimulated and Producing Properties Abroad Developed. Enlarging Refinery Capacity

**Specially Contributed**

Serious attention is being given the problem of oil supply in Japan, with the purpose of developing controlled production capable of meeting the needs for petroleum products. Crude oil production in Japan proper and in Taiwan is being stimulated; producing properties in foreign countries are being developed; the refining capacity is being enlarged, and the production of petroleum substitutes is being fostered. In addition, the problem of Japanese oil supply has been studied in detail by a special committee of commercial and industrial leaders.

The stimulation of crude production in Japan proper and on the Island of Taiwan (Formosa), resulting principally from the government subsidy granted under the terms of the "Encouragement Law" to facilitate drilling, resulted in definite increases in production during 1928 and 1929 over the low point registered during 1927. Production during 1928 reached a total of 1,944,061 bbls., an increase of 155,437 bbls., or nearly 9 per cent, over the 1927 production of 1,788,626 bbls. A further increase of 71,220 bbls., or nearly 4 per cent, over the 1928 production, brought the Japanese production of 1929 to a total of 2,015,281 bbls., reaching the 2,000,000-bbl. mark for the first time since 1922. Production data covering the principal fields in Japan proper for the first half of 1930 indicate that the increased rate of production is not being maintained during the present year.

### Looking to Sakhalin

Faced with the problem of offsetting a decline in local production, Japanese oil companies have been looking toward outside sources of supply. Particular attention has been paid to the northern half of Sakhalin, where Japanese concessions are checkerboarded with those of the Soviet. Despite the difficulties and hazards of operating under unfavorable weather conditions, production from the Japanese concessions has registered substantial increases annually, being reported as 440,000 bbls. in 1927, 677,000 bbls. in 1928, and approximately 900,000 bbls. in 1929. Production on the Russian plots, started late in 1928, raised the total 1929 production of the northern part of Sakhalin to 1,076,000 bbls. It is reported that 22 new wells were added in the Japanese concessions during 1929, making a total of 64 wells at the close of 1929. Japanese oil companies have also looked to the southern, or Japanese half, of Sakhalin and it is reported that the Nippon Oil Co. has arranged a six-year drilling program. Looking farther afield, one Japanese oil company has applied for concessions in the Netherlands East Indies.

To further augment the supply of oil available for Japanese needs, special attention has been paid to the development of oil shale deposits at Fushun, the liquefaction of coal, the production of synthetic fuels and the use of benzol. It is reported that Japanese production of benzol amounts to 15,000 tons annually, which is said to represent 7 per cent of the total gasoline consumption. The Japanese naval authorities have applied liquefaction tests to Japanese coal and further study is being carried on at the Imperial Naval Fuel Depot at Tokuyama. The liquefaction of brown coal in Chosen also is under consideration.

### Shale Plant

The shale plant of the South Manchurian Railway Co. at Fushun consists of 80 retorts of 50 tons daily capacity, or a total daily capacity of 4,000 tons, with the accessory equipment including shale crushers, cooling and condensing equipment, conveyors, distillation plant and ammonia recovery system. The annual output is rated at 70,000 tons of crude oil, 54,000 tons of fuel oil, 17,000 tons of ammonium sulphate and 7,000 tons of paraffin. It is expected that ultimately the capacity of the plant will be tripled. The first unit of 2,000 tons daily capacity was completed in September, 1929, and the second half shortly thereafter. The oil is sold to the Imperial Japanese Navy; the wax to the Japan Paraffin Co., Ltd., which was organized March 4, 1929, and the ammonium sulphate is being sold in the open market. It is expected that the paraffin output will approximate one-third of the local consumption.

It is stated that approximately 5,500,000,000 tons of oil shale are embedded over the surface of the coal deposits at Fushun. No mining costs are involved, as the shale is removed for the open-pit mining of the coal. The waste product of the distillation, or the spent shale, is to be used for filling the waste pits.

### Increased Gasoline Production

The increase in gasoline production at Japanese refineries has been evident, particularly during the past three or four years. A gain of nearly 100 per cent was registered between 1926 and 1928, during which time gasoline production increased from 439,834 bbls. to 835,732 bbls., the production for 1929 not having as yet been published. In comparison with the gasoline production of other smaller refining countries, the 1928 output of Japanese refineries was slightly less than one-half of that produced in Germany or Argentina, approximately one-fourth the gasoline production of Mexico or Peru, and less than one-tenth of the Canadian production.

Japanese production of gasoline may be expected to increase materially, however, as the result of additions to the country's refining capacity which have either been completed recently or are under definite construction or contemplation. On May 10, 1930, the Kudamatsu refinery of the Japan Oil Co. was dedicated. This plant is reported to be equipped with Foster-Wheeler and Leslie pipe stills, and Cross cracking apparatus. The plant was designed to operate on Formosan crude. The Mitsubishi Shoji Kaisha, Ltd., is reported to have established a new refining company in cooperation with the Tide Water Associated Oil Co., with plans to erect a refinery at Tsurumi, near Yokohoma, having a daily capacity of 4,000 bbls. crude throughput and 1,500 bbls. cracking. An output of approximately 200,000 bbls. of gasoline annually is estimated. It is reported that the Tide Water Associated will be responsible for the technical management while the Mitsubishi company, said to be one of the largest industrial organizations in Japan, will handle the sale of products. The third recent event of importance was the registration of the Japan Gasoline Co., Ltd., to produce gasoline by cracking, having obtained certain rights to the Dubbs process.

### Natural Gasoline Output

In addition to the production of gasoline at refineries, definite progress has been made in the production of natural gasoline, the annual output amounting to slightly less than 10 per cent of the refinery output. The first compression apparatus was imported from the United States and erected in the Nishiyama fields in October, 1914. A recent compilation of plants operated by the Japan Oil Co. listed 15, with a daily capacity of 6,500,000 feet, using the compression system, and 8, with a daily capacity of 9,000,000 feet, using the absorption process, in Japan proper and 3 compression plants, with daily capacity of 1,500,000 feet, and 11 absorption plants, with daily capacity of 16,000,000 feet, in Taiwan. A large absorption plant, capable of treating 30,000,000 feet daily, is now under construction at Kinsui, Formosa.

### Natural Gas Production

Natural gas production in Japan is centered in the Nishiyama, Takamachi, and Ohmo Fields in Niigata Prefecture and the Kinsui Field in Taiwan, which are also the principal locations of natural gasoline extraction. Several communities in Japan are supplied with natural gas, among them being Kashiwazaki, Sanjo, Niigata, Nagaoka, Niidzu and Mitsuke. The last three have been supplied with natural gas for approximately four years, while distribution to Niigata is of recent accomplishment. These communities are supplied from the Ohmo Field. The following table shows natural gas production in Japan and Taiwan during the past four years.

**NATURAL GAS PRODUCTION, 1926-1929**

(In M. cubic feet)

| Year— | Japan proper | Taiwan | Total |
|---|---|---|---|
| 1926 | 788,382 | 122,716 | 911,098 |
| 1927 | 992,545 | 155,142 | 1,147,687 |
| 1928 | 970,380 | 173,589 | 1,143,969 |
| 1929 | 1,013,381 | 175,228 | 1,188,609 |

### Pipe Lines

Pipe lines in Japan, Taiwan and Sakhalin are relatively short and usually of small diameter. Crude oil from the Nishiyama district is shipped to the Kashiwazaki refinery through a 4-inch line, approximately 10 miles long. The refinery also is served by a 4-inch gas line and a 2-inch gasoline line, originating at the Yunoiri gasoline plant. The Niitsu refinery is the terminal for two 6-inch and one 4-inch oil line, each less than 4 miles long, and a 6-inch gas line. The Akita refinery is served by three crude oil lines, of 3, 6 and 8-inch diameter, the longest of which is approximately 12 miles. The Karukawa refinery, operating on crude from Hokkaido, is reached by one 2-inch crude line and a 1½-inch gasoline line. The Taiwan refinery is the terminal for a 2-inch crude line, approximately 10 miles long, and a shorter 4-inch gas line. Two 6-inch lines, nearly 7 miles long, transport crude from the Oha Field in northern Sakhalin to the loading station on the coast.

Oil well equipment in Burma.

**OUTPUT OF JAPANESE REFINERIES—1920-1928**

| Year— | Barrels | | | | | Asphalt (short tons) |
|---|---|---|---|---|---|---|
| | Gasoline | Kerosene | Gas oil | Lubricants | Fuel oil | |
| 1928 | 835,732 | 288,654 | 1,254,062 | 788,517 | 245,472 | 24,702 |
| 1927 | 625,907 | 289,242 | 1,078,758 | 736,321 | 206,002 | 14,498 |
| 1926 | 439,834 | 320,367 | 1,208,001 | 526,192 | 239,432 | 15,610 |
| 1925 | 313,018 | 265,432 | 1,250,970 | 579,885 | 213,582 | 9,670 |
| 1924 | 180,978 | 207,996 | 1,191,357 | 592,725 | 163,032 | 9,569 |
| 1923 | 173,446 | 162,357 | 857,743 | 518,920 | 164,146 | 7,114 |
| 1922 | 164,927 | 180,687 | 830,571 | 371,599 | 187,704 | 8,145 |
| 1921 | 160,300 | 162,551 | 792,746 | 484,419 | 118,367 | 7,247 |
| 1920 | 178,646 | 226,762 | 648,054 | 419,508 | 210,079 | 7,166 |

Source—Annual reports of Imperial Bureau of Commerce and Industry.

**CRUDE OIL PRODUCTION, JAPAN PROPER, BY MONTHS**

(Figures in barrels of 42 gallons each)

| 1929— | Hokkaido | Akita | Niigata | Total |
|---|---|---|---|---|
| January | 7,672 | 55,644 | 97,833 | 161,149 |
| February | 7,005 | 49,040 | 84,291 | 140,336 |
| March | 7,477 | 56,773 | 98,070 | 162,320 |
| April | 7,115 | 57,523 | 93,294 | 157,932 |
| May | 7,610 | 60,657 | 101,207 | 169,474 |
| June | 8,108 | 58,896 | 97,781 | 164,785 |
| July | 8,861 | 60,937 | 101,410 | 171,208 |
| August | 8,396 | 61,196 | 97,394 | 166,986 |
| September | 8,006 | 58,608 | 97,258 | 163,872 |
| October | 8,291 | 58,220 | 98,243 | 164,754 |
| November | 8,639 | 56,681 | 89,775 | 155,095 |
| December | 8,455 | 57,790 | 91,991 | 158,236 |
| Total 1929 | 95,635 | 691,965 | 1,148,547 | 1,936,147 |
| 1930— | | | | |
| January | 7,571 | 56,532 | 89,198 | 153,291 |
| February | 6,962 | 49,704 | 80,780 | 137,446 |
| March | 8,099 | 54,987 | 93,617 | 156,703 |
| April | 8,043 | 52,696 | 95,603 | 156,342 |
| May | 8,530 | 56,558 | 83,402 | 148,490 |
| June | 7,973 | 55,719 | 101,518 | 165,210 |
| Total January-June, 1930 | 47,178 | 326,186 | 544,118 | 917,482 |

**CRUDE OIL PRODUCTION, PRINCIPAL FIELDS, JAPAN PROPER**

(Figures in barrels of 42 gallons each)

| | Total 1929 | Jan.-June, 1929 | Jan.-June, 1930 |
|---|---|---|---|
| Hokkaido— | | | |
| Ishikari | 62,772 | 29,020 | 31,346 |
| Masuhoro | 27,696 | 12,128 | 15,718 |
| Atsuma | 5,167 | 3,839 | 114 |
| Total Hokkaido | 95,635 | 44,987 | 47,178 |
| Akita— | | | |
| Michikawa | 107,526 | 52,951 | 54,301 |
| Asahikawa | 124,867 | 61,487 | 57,787 |
| Kurokawa | 118,519 | 58,144 | 54,660 |
| Toyokawa | 141,381 | 68,154 | 63,529 |
| Yuri | 99,171 | 48,670 | 44,472 |
| Nakano-Oguni | 42,014 | 18,997 | 24,453 |
| Ogura-Toyokawa | 20,982 | 10,058 | 10,336 |
| Dai-Nippon-Oguni | 23,078 | 12,373 | 12,479 |
| Hibiki | 14,427 | 7,699 | 4,169 |
| Total Akita | 691,965 | 338,533 | 326,186 |
| Niigata— | | | |
| Niitsu | 326,125 | 160,113 | 150,112 |
| Nishiyama | 603,050 | 304,512 | 281,391 |
| Higashiyama | 85,984 | 41,724 | 41,355 |
| Ohmo | 111,790 | 55,775 | 60,850 |
| Nanokaichi | 11,467 | 5,405 | 5,019 |
| Others | 10,130 | 4,947 | 4,891 |
| Total Niigata | 1,148,547 | 572,476 | 544,118 |
| Total Japan proper | 1,936,147 | 955,996 | 917,482 |

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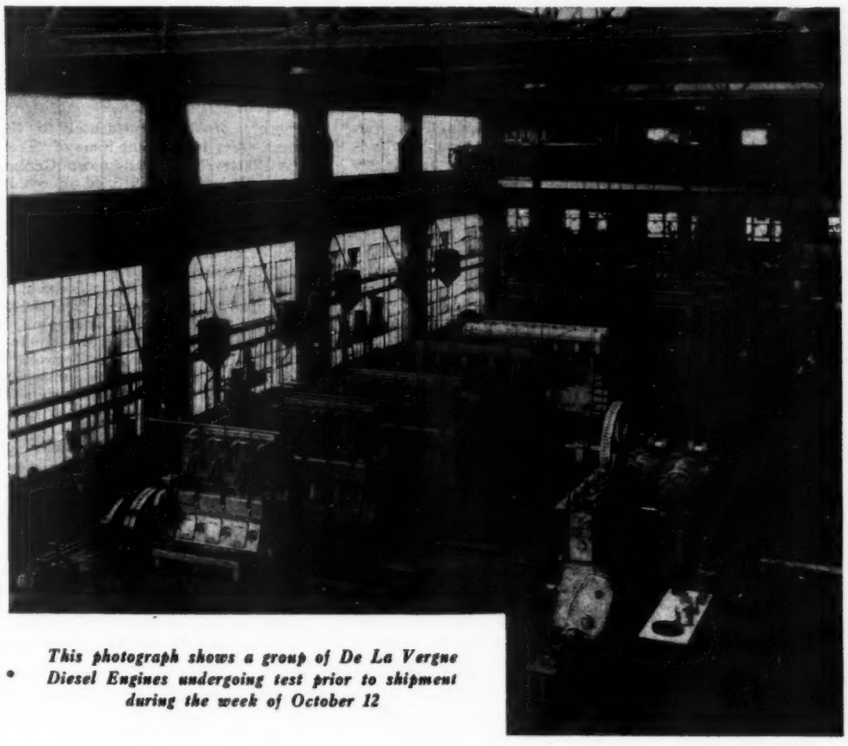

*This photograph shows a group of De La Vergne Diesel Engines undergoing test prior to shipment during the week of October 12*

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# Improved and Speedier Tankers Used

## Marked Shortage on Many of More Important Runs Early in Year but Saturation Point Is Now Being Approached

With the world's petroleum industry becoming more international in scope from year to year and production and development expanding in territories far removed from refinery centers, the world's tanker fleet has been materially expanded to keep pace with the development of the industry's transportation system. New and improved tank vessels, of enormous carrying capacity, are coming into service from month to month and rendering almost obsolete tankers a decade ago represented the last word in oil movement.

With cargoes representing heavy investments, every effort has been made to increase the speed of tankers, and modern Diesel driven or high pressure steam turbine vessels are now being turned out that are easily capable of making 11 or 12 knots, fully loaded, as against the 9 or 10 knots made by the modern tankers of but a few years ago.

Early this year there was a marked shortage of tankers in many of the more important runs, and this brought about a situation where the attention of integrated petroleum companies centered on their water transportation problems. Just as the large companies have shown a decided tendency to further integrate their operations through the control of pipe lines for moving crude to their refineries, and in many instances gasoline from their refineries to distributing points, so too have the large companies with important foreign producing or marketing operations set themselves to the task of building up their respective fleets to concentrate their transportation activities and further lower their handling costs.

The program of tanker construction undertaken by a number of the leading oil companies has developed to such an extent that it is beginning to become evident that the "saturation point" will soon be reached and passed, leaving private operators of tank vessels in an unfavorable position when it comes to competing for business.

### Changes in Construction

As the material expansion of world trade in petroleum has made necessary additional investments in tankers, so too has the changing complexion of this trade made necessary a number of changes in tanker construction. Rapid corrosion in tankers is much more general now than was the case a decade ago, and some American shipbuilders are reported using special steels, with some copper content, to prolong the life of the vessels and retard corrosion.

Heavy movement of Venezuelan and West Texas crudes, many of which have a high sulphur content, have caused shipping departments of the large oil companies considerable difficulty. These tankers come North loaded with crude, and after the oil has been discharged at the refinery terminals, salt water is pumped into the tanks for ballast. The action of the salt on the remaining deposits of crude creates sulphuric acid, which not only damages the ship's plates but likewise creates dangerous fumes.

The decided trend from kerosene or "burning oil" shipments in bulk to gasolines and naphthas has also caused considerable trouble to the tanker departments of oil companies. Benzol and other blends all create considerable havoc with the steel plates of the tanker, and save in cases where special steels have been used in tank construction to offset this potential corrosion, it is estimated that the probable life of tankers handling these products is materially shortened under the average life of the old time tankers.

Standard Oil Co. (New Jersey), through Standard Shipping Co., its subsidiary, has assumed world leadership in tanker construction. The tanker fleet operated by Standard Oil Co. (New Jersey), comprising 138 vessels, is the largest privately owned fleet, in point of tonnage, under the American flag. The combined fleet of Standard Oil Co. (New Jersey) and all subsidiaries, under both the American and foreign flags, is the largest oil tanker fleet in the world.

The present tanker fleet of Standard Oil Co. (New Jersey) and subsidiary companies aggregates approximately 1,350,000 tons, deadweight, and in addition approximately 240,000 tons of additional tankers are now under construction for the Standard Oil Co. (New Jersey) group, and scheduled for early completion and delivery.

Standard Oil Co.'s (New Jersey) fleet is some 400,000 tons in excess of the combined fleet of Royal Dutch-Shell and subsidiaries, and is more than 500,000 tons in excess of the Anglo-Persian tanker fleet, which ranks third in tonnage among world oil companies.

While considerable of Standard Oil Co.'s (New Jersey) fleet is under the flag, conditions peculiar to the operation of some subsidiary companies have made it necessary to register the tankers used by these foreign subsidiaries under the flags of their respective countries. Among others, Standard tankers lfy the flags of Great Britain, Holland, Belgium, Denmark, Italy and Norway. Three lake tankers, used on Lake Maracaibo by Creole Petroleum, a subsidiary, fly the Venezuelan flag.

### "Stillman," World's Largest

International Petroleum Co. of Canada, subsidiary of the Standard Oil Co. (New Jersey), boasts the largest tanker afloat, the C. O. Stillman. This vessel holds the record of having taken the largest cargo ever to pass through the Panama Canal on one of her runs from Talara, Peru, northward with Peruvian crude. The "Stillman," a photo of which is shown herewith, represents the last word in tanker construction. She is of approximately 22,700 tons, deadweight, has a length of 565 feet, beam of 75 feet, and draws 31 feet of water when fully loaded. International Petroleum also owns and operates a number of other large tankers, which rank among the largest and fastest now afloat.

The combined carrying capacity of the entire fleet controlled by Standard Oil Co. (New Jersey) is approximately 10,500,000 bbls. of crude oil and refined products of 42 gallons each.

International Petroleum has just placed into service a new 20,000-ton, deadweight, tanker, the "G. Harrison Smith," which recently completed her first run. The "W. S. Farish," a sister ship to the "G. Harrison Smith," is now nearing completion at the Federal shipbuilding yards at Kearney, N. J. The "W. S. Farish," which will be a fast tanker with high pressure steam turbine propulsion, will fly the American flag and will be operated by the Standard Shipping Co.

Besides its extensive fleet now in operation, Standard Oil Co. (New Jersey) is now building for its various subsidiary companies nine tankers of 16,200 deadweight tons each. Six of these vessels are building in Germany and three in Italy. In addition, the company is building six tankers of 16,000 deadweight tons each, of which three are building in Germany, two in England, and one in Italy. Of this latter group, five are scheduled for delivery before the close of the year and the other will be delivered some time next month.

The world's tanker fleet has shown substantial expansion during the past eight years, and present indications do not point to any early lessening of the world's building program. With the oil

(Continued on Page 216)

## BLENDING ALCOHOL WITH GASOLINE IS COMPULSORY IN SOME COUNTRIES

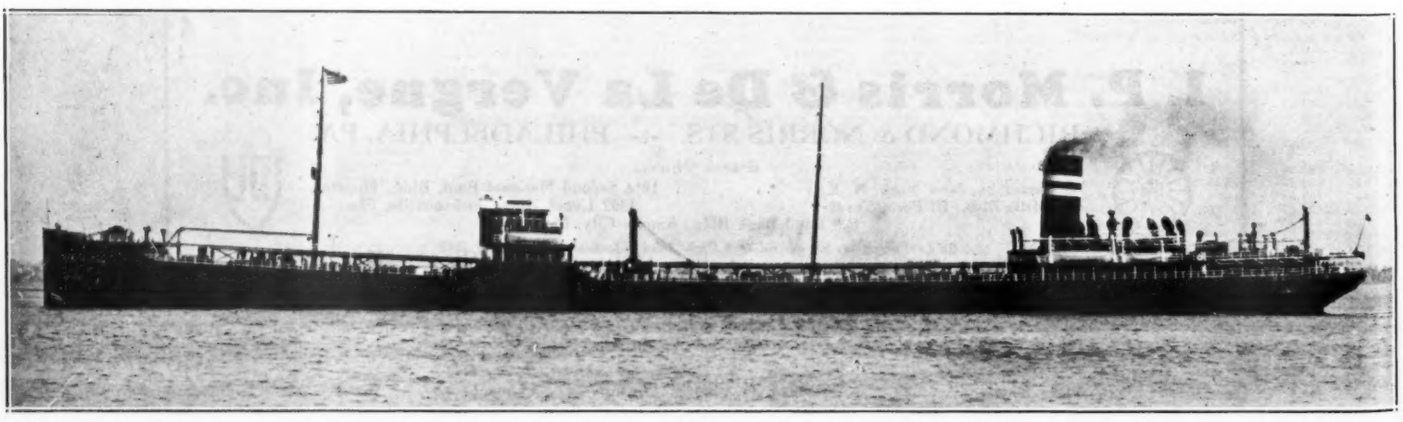
American petroleum companies operating in foreign countries through subsidiary marketing organizations have experienced considerable difficulty during the past year due to the insistence of alcohol-producing countries that quantities of this fluid be purchased by oil marketers and blended with motor fuels. These regulations, now in effect in several countries, not only cut materially into volume of gasoline sales, but in addition cause marketers other difficulties due to the added cost incidental to handling of the alcohol and blending of it with their gasoline before distribution into retail channels.

The German government, under the terms of a decree issued in July of this year, made the use of alcohol blended with imported motor fuel compulsory. The German order was designed to aid the agricultural interests of Germany in the disposal of larger quantities of their surplus product, the potato growing industry in particular being a beneficiary under this ruling. While the German order at first caused some concern to marketing organizations in that country, it is understood that the measure is now working out satisfactorily, the petroleum industry having met with but relatively little difficulty in achieving a satisfactory blend.

### Difficulties in Blending

The alcohol-gasoline blend is sold in Germany under the brand "Monopolin." Discussing problems incidental to this blending order in a recent issue of "Technische Blatter," the well-known German chemist, T. Kuhlein, outlined in considerable detail some of the difficulties surrounding the blending operation. Doctor Kuhlein stressed the fact that the thermal efficiency of a motor is increased the higher the compression at which it can be fired. In the usual motor fuels, he says, the compression ratio ranges from 4.5 to 6 to 1, while in a special alcohol motor the greatest thermal effect from the fuel is obtained at compressions between 7 and 12 to 1. Due to this, he points out, alcohol alone as a fuel for the ordinary type of automobile engine is not desirable from an economic standpoint, due to the relatively low compression at which it is consumed. Similarly, gasoline is not a suitable fuel for an engine designed to burn alcohol, owing to the high compression ratio of the latter. There are several conditions militating against the construction of automobile engines for burning pure alcohol alone, he says, among them being the difficulty in obtaining satisfactory fuel supplies when wanted and the necessity for preheating of the combustion air, the heat units required to vaporize alcohol being approximately 2½ times greater than those required to vaporize an equal quantity of petroleum motor fuel. Benzol blended with an equal

(Continued on Page 218)



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# Modern Methods Exploit Old Sumatra

## Slowly but Surely the South Sumatran Jungle Is Forced to Yield Its Stores of Oil for Local Refining

Specially Contributed

Getting "jungle oil" makes a man a forester, a hunter and a teacher. Between cutting back the jungle, warding off wild animals and reptiles, and supervising unskilled laborers—one soon forgets the word "hurry." Laborers consist mostly of non-English speaking Chinese, Javanese and Malays—the majority of whom have never seen a pick or shovel before, much less more complicated tools and equipment. Yet in spite of handicaps such as the hauling of heavy loads by large two-wheeled native carts, drawn by cows or water caribou which make only a few miles in a day—and notwithstanding the fact that the average Sumatra native measures his wealth by the number of wives he has to work for him (preferring to spend his time in training monkeys to climb tall palm trees to pick cocoanuts)—petroleum production in this "happy land" on the other side of the world is steadily on the increase. Modern American methods of exploration, drilling, producing, transporting and refining are on the job.

At the end of the 12,000 to 15,000-mile journey to Palembang, one of the first things an American field man notices is the absence of competitive production. There is no town lot drilling in Sumatra. The Dutch Government owns all of the mineral rights, and is careful to see that oil concessions do not overlap. Locations are made with regard to structural considerations only, and wells are drilled, or not, according to the estimated promise of returns.

### Oil Acts as Stimulant

Mentioned in Chinese records 2,000 years ago, visited by Marco Polo long before the discovery of America, possessed by the Dutch since 1600, Sumatra is still thinly populated and its natural resources have been merely scratched over. But this relative slowness of development is not strange for a tropical country where intense heat, ferocious beasts, monsoon rains, volcanoes, savage tribes, mountainous or swamp topography, native indolence and ignorance have long served to block the path of western enterprise.

Looked at on the map, Sumatra sits in the Indian Ocean, astride the equator, presenting an area 14 times larger than the Netherlands. Looked at from a West Coast boat, the island reveals nothing beyond the distant mountains. Looked at from the standpoint of crude oil production, Sumatra produces nearly one-third of the Dutch East Indies' total. And today petroleum is the magic wand that is arousing this sleepy outpost of oildom from its centuries of lethargy.

### Two Companies

Pronounce "Bataafsche Petroleum Maatschappij," and you have the name of the producing subsidiary of the Royal Dutch-Shell. Take another long breath and say "Nederlandsche Koloniale Petroleum Maatschappij," subsidiary of Standard Oil Co. (New Jersey). "Shell" and "Standard" are easier to remember.

Shell began operations in 1890 in northern Sumatra; seven years later the Palembang region in the south was discovered and has since yielded the larger production. The depth of wells ranges from 500 to 800 feet in the northern region to 2,400 feet in the Palembang district. American and Canadian methods of drilling are successfully employed in these fields. The crude of the northern fields is piped to the Shell refinery at Aru Bay, and from this point it is shipped to the nearby storage stations on Sembilan Island. Palembang oil is transported by pipe line to the Shell refineries at Lulang River, Palembang, and Gebang. The refined products are marketed principally in the island and in Asia, while a small part finds its way to European markets.

Standard's production activities have been confined rather strictly to South Sumatra (residency of Palembang). Oil is pipe 80 miles through the jungle to the Standard's refinery at Soengei Gerong, near Palembang. In the case of Standard as well as Shell, the crude petroleum is obtained from concessions located in the general vicinity of the refinery, the producing wells and refinery being operated by the same controlling interests. Gasoline, kerosene, terpene, fuel oil, asphalt, lubricating oils and greases are obtained from the refineries. Nearly all of the Sumatra crude oils are especially rich in light products and, generally speaking, contain little or no paraffin.

—Photo by Ewing Galloway, N. Y.

**A river scene in Sumatra—the "Happy Land."**

In the north, the daily output of the average well is 15 to 75 bbls.; a few gushers give 450 bbls. a day. In the south, the average daily production per well is 135 to 150 bbls. A few gushers flowed at the start 3,000 to 6,000 bbls. daily. No effort has been made to drill in middle Sumatra.

### Palembang

Someone has said, "if you haven't seen Palembang, you haven't seen Sumatra." At any rate, the Palembang fields are producing over 75 per cent of the island's crude.

Palembang, capital of the residency by that name, is one of the largest ports on the East Coast. Situated on the banks of the River Moesi about 80 miles upstream, it is the principal commercial town in South Sumatra. Palembang is built on both sides of the river and is very long with a small breadth. The native houses are built mostly on poles on account of the floods which occur every year; only the European houses and the buildings such as the post office, barracks, the great mosque, etc., are stone construction. There are two hotels—the Nieuwkerk and the Palembang. A day's journey by water from Java or Singapore brings you to this picturesque old city, the "Tulsa" of Sumatra.

In the South Sumatra the rivers are large and numerous; the transport of materials for the opening up of new fields has been accomplished in almost every case by water. The seasonal variation, however, from tremendous floods over the river banks to streams too shallow for transportation of heavy material presents many problems. South Sumatra has small, widely scattered settlements and large regions are still inaccessible and remain undeveloped.

### Making Progress

The government is now threading roads through the South Sumatran hills and jungles to connect with a single main railway. An automobile road goes from Palembang to the Standard's concessions at Talangakar and Pendopo. Airplane service is being established also. In recent years American methods of production have been introduced, largely through the efforts of Standard, and the drilling practice in many fields compares favorably with that in the United States. Although increased production is due partly to more intensive drilling, the rotary system, which enables drilling to be done more quickly and to greater depths than was possible with the percussion system, has come into general use. Considerable extensions have been made to some of the existing fields, and several new pools have been discovered which have contributed in no small degree to the increase in production. The "Niam" (Nederlandsch Indische Aardolie Maatschappij), in which the Dutch Government has a large share, has discovered a pool in North Sumatra.

In the present operations of the oil fields, Europeans, Canadians and Americans are employed as drillers and in the more skilled occupations. They are usually sent out on a three-year contract

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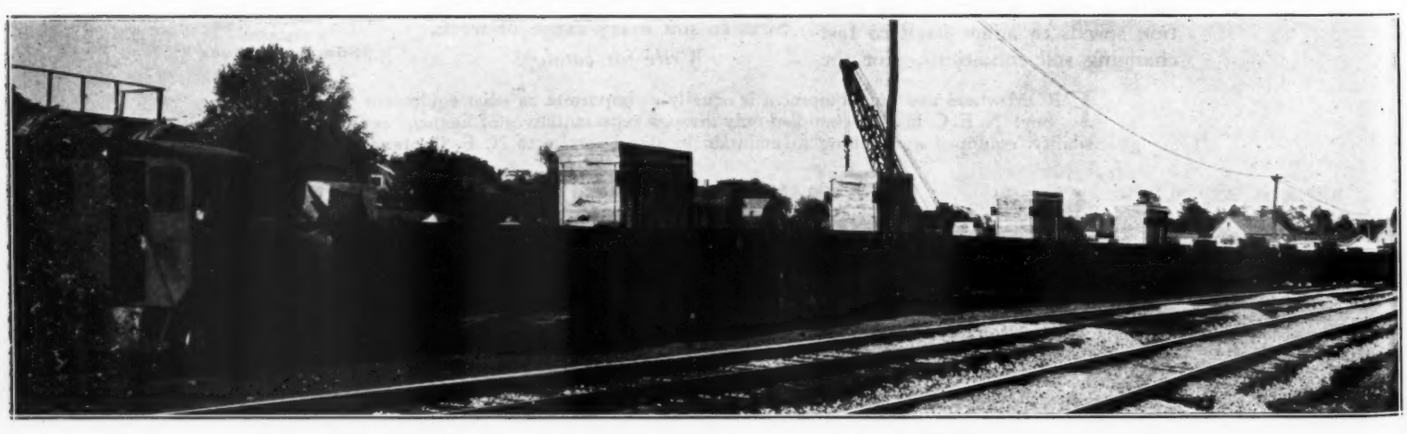
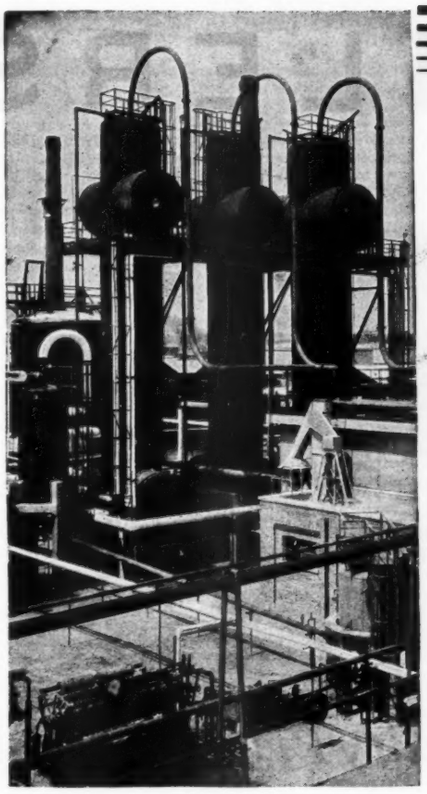


**Trainload of Cooper-Bessemer two-cycle compressor units and four-cycle Diesel engines bound for Sumatra.**



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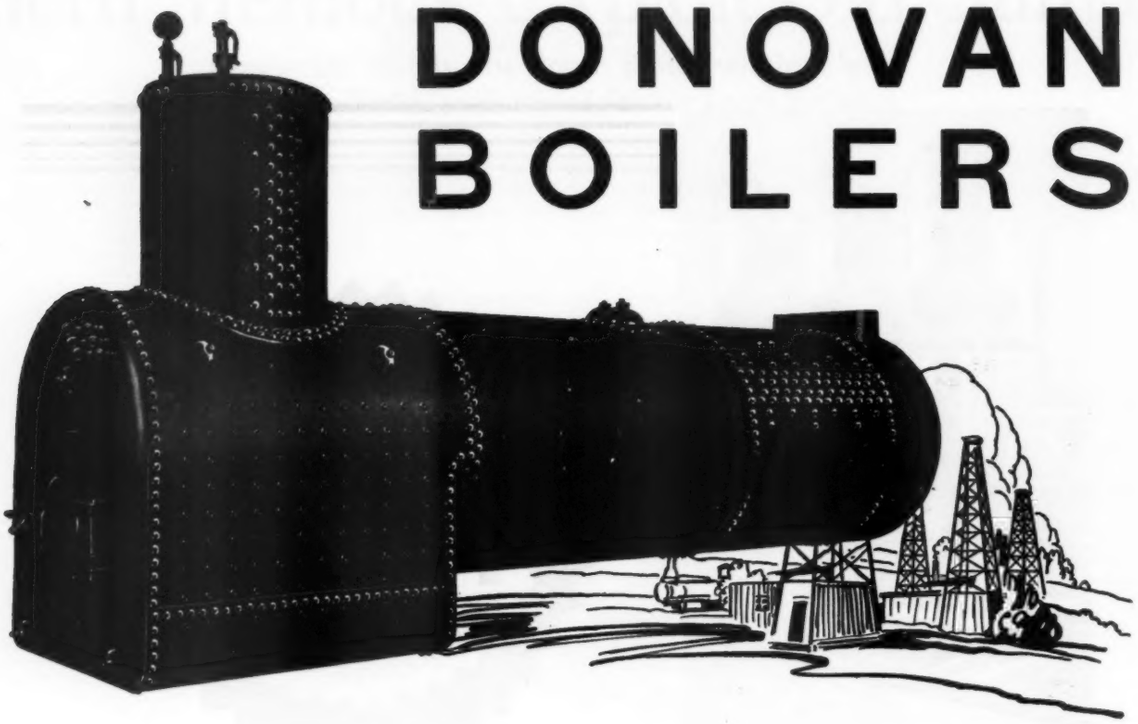

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# Soviet Reports on Ten Years in Oil

## Contrasts Condition of Russian Industry Before the War With Improvements Since Introduced

**From Economic Review of the Soviet Union**

Ten years ago, in May, 1920, the oil industry in the Soviet Union was nationalized. At that time the industry was at an exceedingly low ebb. Even prior to the war the industry was on the downgrade. The enterprises were operated by hundreds of competing firms, which made a rational management of production and proper technical development impossible. These firms drilled only the richest strata, ignoring and abandoning the rest. Repairs were neglected, drilling in new regions was at a minimum, old deposits were rapidly exhausted. The most primitive and wasteful methods of exploitation were employed, such as bailing, percussion drilling, etc. These circumstances, followed by the destruction and disorganization wrought by the war and interventions, led to the almost total disruption of the industry at the time of nationalization. The oil fields and refineries were lacking in the most necessary equipment and supplies, in skilled workers, means of transportation and finances.

By stupendous efforts and great capital investments during the past 10 years the oil industry has been brought to a position far in advance of the prewar level. New wells have been sunk in the old fields, improved methods of organization and exploitation have been instituted, many new deposits have been opened up. The total output, which had fallen in 1920 to 3,800,000 metric tons, was brought up to 13,600,000 tons in 1928-29, whereas the 1913 figure was 8,923,000 tons. In the first half of the current year there was a further increase in production of 20 per cent.

The Soviet Union now occupies third place among the oil-producing countries of the world. By 1928-29 exports had mounted to 3,600,000 tons, or over four times the prewar figure, and constituted 30 per cent of the total commercial output. Exports for the first six months of 1929-30 amounted to 2,125,000 tons, an increase of 38 per cent over the same period in 1928-29. Soviet oil exports are now a considerable factor on the world oil market. Capital investments in the oil industry of the Soviet Union have amounted during the 10 years to 1,320,000,000 rubles ($680,000,000).

### Improvements Introduced

The main improvements introduced under the Soviet regime in the oil industry comprise the substitution of rotary and turbine drilling for the old method of percussion drilling, the application of the Perkins method of closing in the water, the substitution of deep pumping for bailing, and the use of electricity instead of steam. Deep pumping has made it possible to bring about the complete hermetization of wells and the reorganization of the production of gas. Oil prospecting is being carried out according to a definite plan under expert technical supervision, which works far more economically than the haphazard method in use in the prewar period. As a result of all the rationalization measures which have been put into effect, production costs in the oil industry of the Soviet Union as a whole have already been lowered 11 per cent as compared with the prewar figure.

Considerable progress has likewise been made in oil refining. In the prewar period this branch of the oil industry was exceptionally backward. The more valuable oil products were not produced at all. The main products were mazut (fuel oil) and kerosene. Gasoline was produced in insignificant quantities, while lubricating oils, particularly for automobiles, were entirely neglected. The methods employed in refining remained primitive, revealing only faint signs of progress during several decades. It was therefore necessary for the Soviet regime not only to restore the old plants but to construct many new ones and to organize production on an entirely new basis. Pipe stills, cracking plants, plants for producing bright stocks were formerly unknown. Introduction of modern methods and equipment in the field of oil refining has proceeded rapidly during the past 10 years. Particularly marked progress has been made in the production of gasoline and the higher grade oils. Already cracking installations are being used extensively. As a result of improved refining facilities large-scale production of oil products (such as paraffin, automobile oil, petroleum asphalt, lamp black, zeresin, etc.) is being developed.

### Soviet Reserves

The Soviet Union is among the foremost countries in oil reserves, the total reserves being estimated at 4,700,000,000 tons. In recent years several discoveries have been made of hitherto unknown deposits in new regions, the most important of these deposits being those of the Chusovaya district in the Urals. The outstanding oil regions in the U.S.S.R. are the Baku and Grozny regions, which account for over 95 per cent of the total production. However, developments are being speeded up in the Sakhalin Island, the Urals, the Ukhta, Maikop, Emba, Turkestan, Uzbekistan and other fields.

The oldest and most important oil region in the Soviet Union is the Baku region. This field has been exploited continuously since 1863. In the prerevolutionary period it was exploited by various competing companies, often working against their mutual interests through lack of scientific methods and careless prospecting. On account of the ruinous conditions prevailing at the time of nationalization the work of reconstruction before actual production could begin extended over a period of about three years. During the 10 years since the nationalization of the industry the Baku oil region has produced 52,700,000 tons of oil and 900,000 tons of gas. The output in 1927-28 amounted to 7,574,000 metric tons and outstripped that of 1913, which was 7,358,000 tons. In 1928-29 the output reached 8,683,000 tons, and in the current year it is expected to attain 10,500,000 or 316 per cent more than that of the first year of production after the nationalization of the industry.

### Output of Baku

The following table shows the output of the Baku Field from 1920-21 to 1928-29.

| Year— | Output (in 1,000 metric tons) | Aver. No. of wells exploited daily | Aver. daily output per well (in metric tons) | Per cent increase over previous year: Output | Per cent increase over previous year: Aver. No. of wells |
|---|---|---|---|---|---|
| 1920-21 | 2,457.3 | 777 | 8.6 | ..... | ..... |
| 1921-22 | 2,945.3 | 1,698 | 7.2 | +19.9 | +41.3 |
| 1922-23 | 3,485.1 | 1,437 | 8.5 | +18.3 | +30.9 |
| 1923-24 | 4,124.8 | 1,774 | 6.2 | +18.4 | +23.5 |
| 1924-25 | 4,662.6 | 1,907 | 6.6 | +13.0 | + 7.5 |
| 1925-26 | 5,513.6 | 2,287 | 6.4 | +18.3 | +19.9 |
| 1926-27 | 6,809.7 | 2,661 | 6.9 | +23.5 | +16.4 |
| 1927-28 | 7,573.8 | 2,905 | 7.0 | +11.2 | + 9.2 |
| 1928-29 | 8,683.4 | 3,143 | 7.5 | +14.7 | + 8.2 |

The output for the first 10 months of the current fiscal year, 1929-30, amounted to 8,381,000 tons, 99.6 per cent of the program. The production of refined products totaled 6,234,000 tons, or 97.5 per cent over the program.

Over 45 per cent of the wells in operation in 1928-29 were sunk after nationalization. Of the output in 1928-29, only one-sixth was produced from old wells; the balance of 7,300,000 tons, or 84 per cent of the total output, was produced from new wells. In 1924 more than half the oil production of the Baku region was done by bailing, while in 1929-30 approximately five-sixths of the Baku wells in operation were equipped with deep pumps. In 1928-29 production by means of electric power reached 99.1 per cent. The cost of power per ton of oil has been cut considerably: In 1923-24 this cost was 2.69 rubles, while in 1928-29 it was reduced to 43 kopeks, or by 84 per cent. The steady decrease in percussion drilling and the rise in rotary and turbine drilling (in 1928-29, 90 per cent of the drilling was done by the latter methods) have greatly speeded up working operations. For instance, a well of from 600 to 700 meters can now be drilled in two or three months, whereas this work often used to take a year or more. Thanks to all the rationalization measures adopted the production cost per ton of oil in the Baku fields has constantly diminished.

### Pipe Lines

An outstanding achievement has been the construction of the Baku-Batum pipe line with a total length of 535 miles, which has been built to cope with the increased production and exports from the Baku oil fields. The exports from these fields for the first six months of 1929-30 amounted to 1,475,000 tons, an increase of 28 per cent over the same period of the preceding year.

The second oil region in importance is the Grozny district, with its center at Grozny in the northern Caucasus. This region supplies over 30 per cent of the oil output of the U.S.S.R. Actual operations in the Grozny fields began in 1893. In the 25-year period from 1893 to 1917 the total output of the Grozny fields amounted to less than 20,000,000 tons, whereas from 1920-30 the total output came to over 24,000,000 tons. The annual output for the current year, 1929-30, will reach the figure of 6,500,000 tons, or almost six times that of the first year under nationalization and over four times the prewar figure. It should be recalled that in 1920, the year of nationalization, the old region was practically exhausted.

### Drilling Methods

In the Grozny oil fields, too, the methods of exploitation have been greatly improved. Seventy-nine per cent of the drilling in 1928-29 was done by the rotary method. Electrification and deep pumping have practically reached the 100 per cent mark. Refining of oil has also made great progress. During this 10-year period production of gasoline has trebled, while that of kerosene has increased four-fold. Grozny oils are especially rich in gas. A gas plant was built in 1924-25 and from that period to 1928-29 the production of gas, both from the old and new regions, was trebled. During the last five years the production cost of oil has been reduced by 54.6 per cent.

A pipe line 390 miles long was recently completed between Grozny and Tuapse, where there is a big refining plant capable of treating 1,100,000 tons of oil annually. It is estimated that the saving in transportation costs effected by this line amounts to 60 per cent. Another great improvement in transport facilities is the railway connecting up the city with the old and new oil regions. The capital expended in the Grozny oil fields on drilling, new construction work, drillers' dwellings and cultural institutions, the Grozny-Tuapse pipe line, new equipment, etc., from 1922-23 to the first half of 1929-30 amounted to 317,400,000 rubles ($163,500,000).

### Rise in Exports

Since 1921-22, when only 30,061 tons were exported, there has been a continuous rise in exports of Grozny oil. The total exports for 1928-29 amounted to 1,006,390 tons. During the first six months of 1929-30, 604,598 tons had already been exported, or a 64 per cent increase over the same period of the preceding year. The first place in exports was taken by gasoline, exported mainly to France, Spain and Italy.

To satisfy the greatly increased demands of the internal market, particularly in connection with the development of the automobile and tractor industries, as well as of the planned development of oil exports, the Soviet output of oil in the last year of the five-year period is to be increased to 42,000,000 tons, instead of the 21,700,000 tons indicated in the original five-year plan. About 64 per cent of the total will be obtained from fields now under exploitation and the remainder from new fields. It is planned to run an increasing percentage of the crude oil through the refining process. While in 1927-28 this percentage was only 75, in 1930-31 it is expected to reach 95 per cent, and in the last year of the five-year period close to 100 per cent. The expanded program will require an annual increase of over 30 per cent. The control figures for 1930-31 call for a total production of 23,000,000 tons (13,000,000 tons from the Baku and 9,340,000 from the Grozny fields), an increase of 30 per cent as compared with the output expected in the current year. Of this amount refined products are to constitute about 21,000,000 tons, an increase of 55 per cent over the preceding year. Gasoline (3,260,000 tons) and kerosene (4,700,000 tons) are to make up about 40 per cent of the refined products. It is planned to raise this percentage by the last year of the five-year period to 46 per cent for the Soviet Union as a whole and to 65 per cent for the Baku fields. To provide facilities for such an increase in refined products construction plans for 1930-31 call for over two score pipe stills and refineries, over 100 cracking plants, 400 coke ovens, etc.

### Revised Plans

Such a rapid increase in output will require a much more extensive development of drilling operations than heretofore. This is reflected in the revised plans.

| | In meters | | | Per cent increase 1929-30— |
|---|---|---|---|---|
| Exploitation drilling— | 1929-30 | 1930-31 | 1932-33 | 1930-31 |
| Total | 435,000 | 1,480,000 | 2,756,000 | 340 |
| In old regions | ..... | ..... | 1,075,000 | ... |
| In new regions | ..... | ..... | 1,681,000 | ... |
| Exploration drilling | 117,000 | 410,000 | 508,000 | 350 |

For the five-year period ending with 1932-33 it is estimated that there will be a total advancement of over 8,000,000 meters, which is almost seven times that for the five-year period ending 1927-28, and 10 times that for the five-year period ending with 1913. Of the 8,000,000 meters total drilling, 1,562,000 meters will be for prospecting purposes.

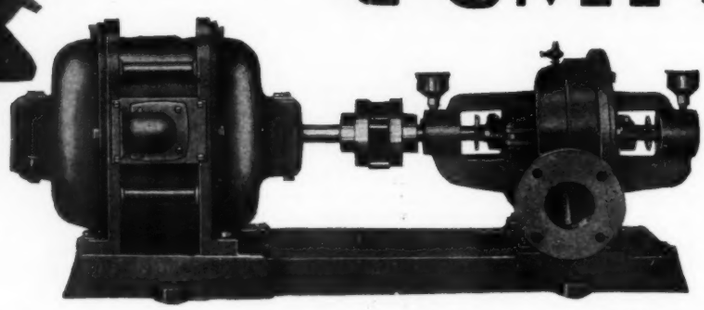
The rapid development of the oil industry demands increasingly large capital investments. For 1929-30 the estimates call for a total of 353,000,000 rubles ($182,000,000). The main items are:

| | (In rubles) |
|---|---|
| Exploitation drilling | 60,250,000 |
| Exploration drilling | 24,400,000 |
| Drilling equipment | 39,200,000 |
| Refineries | 93,500,000 |
| Pipe lines | 20,195,000 |
| Dwellings and social cultural buildings | 35,235,000 |

The revised figures for the five-year

(Continued on Page 203)

# WESTCO TURBINE PUMPS



Volume characteristics of the centrifugal pump . . . + Pressure characteristics of the piston pump . . . . . — The disadvantages of both types . . . . . = WESTCO TURBINE PUMPS

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# AMERICAN OPERATING METHODS GIVE IMPETUS TO GERMAN OIL INDUSTRY

Introduction of American geological and drilling methods into Germany early this year has given the German oil industry new impetus, and plans now under way indicate that a determined effort will be made for the maximum exploitation of Germany's petroliferous areas. Expansion in German refining capacity, however, is waiting for definite signs of substantial widening of home production of crude, present refining capacity in Germany now being more than ample to take care of all the crude produced, and requiring the importation of considerable quantities of foreign crudes to keep throughput figures up to the country's requirements.

The first American company to enter the production field in Germany on a large scale was North European Oil Corp., which late in 1929 leased considerable acreage in several sections of Germany. This company was originally headed by Chester Naramore, former chief of the petroleum division of the United States Bureau of Mines and American representative at the Inter-Allied Petroleum Conference. Mr. Naramore has since been elected to the vice presidency of the company, Count L. A. G. Dru, director of Consolidated Goldfields of South Africa, succeeding him at the head of the company. Mr. Naramore, a practical oil man, was formerly associated with Sinclair's African operations. Other oil men identified with North European Oil included Roderick Crandall, consulting petroleum engineer of London, Byron E. Hepler, vice president and treasurer of Hope Engineering & Supply Co.; Karl F. Hasselman, formerly associated with Standard Oil Co. of California and now resident geologist in Germany for North European, and Dr. A. C. Veatch, former chief geologist of General Asphalt Co. in Trinidad and Venezuela, and identified with numerous other oil projects.

These interests, through the purchase of German companies, succeeded in securing leases and options on more than 1,500,000 acres in German oil areas, with the most promising properties in the Hanover Field.

NORTH WESTERN GERMANY

Map showing location of North European Oil Corporations properties

### Deeper Sand at Hanover

The advent of American drilling methods has completely revolutionized field work in that country. Up to a few years ago German drillers seldom got below the 1,000-foot level, but with the introduction of rotary drilling equipment holes are now going down 2,600 feet and deeper. This has resulted in the discovery of a hitherto unsuspected and untapped deep sand producing zone in the Hanover basin, yielding crude of good quality.

Economic conditions in Germany make field development by foreign capital peculiarly attractive at this time. Germany's import tariff on crude oil imports amounts to approximately $3.57 a barrel. The lowest rate of transportation from known oil fields into Germany is 75 cents per barrel, so producers in Germany, selling crude at $4.25 per barrel, are in a position to absolutely shut out competition from foreign crude.

Field equipment, pipe, casing, etc., cost considerably less in Germany than in other parts of the world, and semiskilled labor for field work can be obtained for approximately 25 per cent of prevailing wage levels for similar work in the United States, and substantially under the wages paid field workers in tropical producing countries. Thus with drilling costs lower than in the United States, and the selling price of the oil substantially higher, the profit outlook in Germany is attractive to outside capital, and it is expected that if there are definite indications of heavy production in that country it will witness the advent of considerable field activity by American, British and Dutch companies.

### Government Aids

The German government has been extending 100 per cent co-operation to outside capital in oil operations in Germany, supplying official geological maps and co-operating in the securing of legal and guaranteed leases. The possibility of an extensive prolific oil zone underlying Germany has given rise to high hopes of assistance from this infant industry in rehabilitating the fortunes of the German Republic.

Geologists for years have been pessimistic regarding the outlook for extensive German oil production, but recent developments have indicated that some of these views were arrived at without their sponsors being in possession of the full facts. Hitherto Germany's crude production has been of very heavy oil, suitable mainly for lub stock, but the yield from the new deep sand formations brought to light by the rotary drill have compared favorably with some American crudes, showing 20° gravity and better. More than 50 salt domes have been definitely outlined, and recent geological research has indicated geologic formations identical in many respects with those of the Gulf Coastal and Mid-Continent fields. A marked similarity is seen between some of the German salt domes and some of the buried


# Drake—

with his ancient methods wouldn't get far today in the Oklahoma City Field, would he? Without present day drilling methods made possible chiefly through improvements in Drilling Machinery and equipment, it would be impossible to reach present oil-producing depths.

But have you ever thought about Manila Rope "in terms of Drake"? Ever occurred to you that the Untreated Manila Cordage of today is quite the same as in Drake's time—no improvement? Hard to believe but it's true nevertheless; but many in the oil fields have, in recent months, found that

## "AMCO" The "All-Weather" Rope

represents the outstanding improvement made in Manila Cordage in hundreds of years.

Made only of high grade, long, tough pure Manila Fibre, it conforms to all requirements of A.P.I. specifications. It is a Treated Rope—each of the thousands of fine fibres being carefully processed prior to yarn spinning. "AMCO" is not loaded—it *weighs no more* than Untreated Rope, and it is not greasy.

Waterproofed?—As nearly so as rope can be made. "AMCO" Manila "sheds water like a duck's back."

"AMCO" being rot-proof, is the safest rope for all purposes since there's no chance of serious damage due to dry-rot, etc. This rot-proof treatment makes the rope last longer.

*Don't judge a rope by its strength when new—isn't it more important to consider what load it will take after several months storage or exposure to the elements?*

"AMCO" is being imitated by many; that's a sure sign it has merit—insist on the genuine rot-proof Rope—always put up in Green Burlap. You'll find a label of identification in each coil. If your Supply Store can't furnish you, write direct to—

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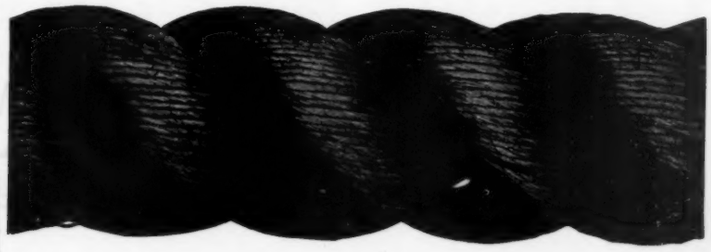
Noble and West Streets Brooklyn, N. Y.

*Tulsa Representative:*

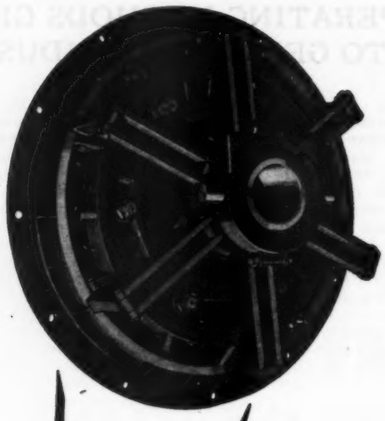
SAM REDIC, 2220 E. Seventh Street

Write for list of distributors.

"AMCO"— The "All-Weather" Rope



# FLEXIBILITY AND POWER CONTROL MUST BE BUILT IN



Draw works built by Lucey always "do their stuff" on the job. Lucey engineers have built in flexibility and power control with clutches that are big enough to handle heavy countershaft loads . . . Twin Disc Clutches.

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Consult our Engineering Research Department for specific recommendations. *Twin Disc Clutch Company, Racine, Wisconsin.*

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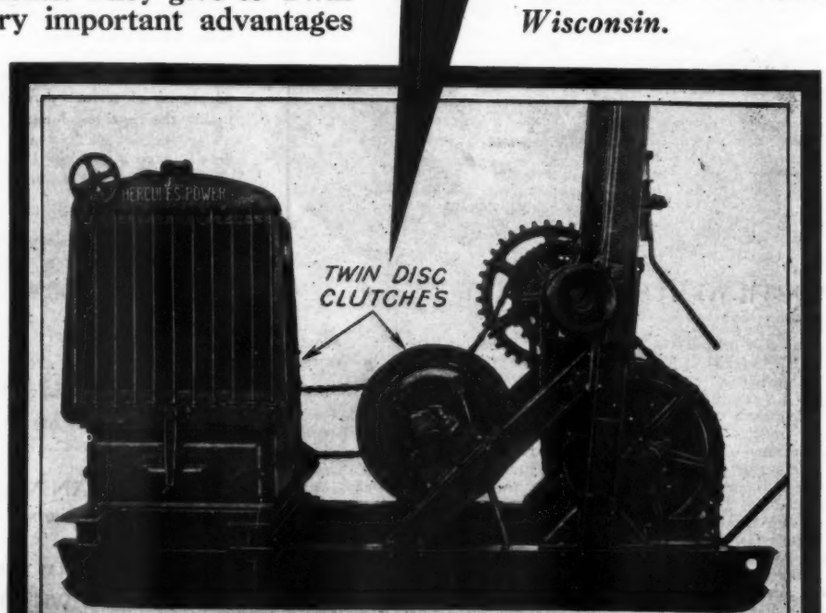
Buffalo, N. Y.—Edward W. Rode, 45 A Street.
Cleveland—Industrial Engine Parts, Inc., 1053 E. 61st Street.
Chicago—Motive Parts Co. of America, Inc., 2419 Indiana Avenue.
Chicago—Western Contractors Supply Co., 14 N. Clinton St.
Detroit—Whitney Brothers, 6464 Epworth Blvd.
Fort Worth—Fort Worth Wheel & Rim Co., 312 Throckmorton.
Knoxville, Tenn.—Automotive Equip. & Supply Company.
Houston, Texas—Portable Rig Co., Inc.
Los Angeles—Coast Machy. Corp., 931 Santa Fe.
New York City—John Reiner & Co., Inc., 290 Hudson St. at Spring.
Philadelphia, Pa.—Maerky Machine Works, 632 Race Street.
Pittsburgh—Contractors Equipment Service Co., 519 East General Robinson St., N. S.
San Francisco, Calif.—F. Somers Peterson Co., 57 California St.
Seattle—Pacific Hoist & Derrick Co., 818 1st Av.
St. Louis—Climax-Jones & Quinn, 3124 Locust Blvd.
Tulsa—Buda Engine Service Co. of Tulsa, Inc.
Richmond—Standard Parts Corp., 1806 W. Broad Street.




TWIN DISC CLUTCHES

salt domes which have been found in Louisiana and Texas.

**More Hopeful Now**

The "new life" which has enterd the German field was described some time ago by an interest identified with this development as follows: "German operators are learning rapidly, and the example of the one well which North European Oil Corp. has been drilling has proved modern rotaries will drill the most difficult formations in Germany 20 times as fast as their own method. It seems unusual that development has been so delayed, but there are several reasons for this: First, the language bar separated German producers from knowledge and literature of American operations. Second, their methods of drilling, splendid in locating coal and salt, were very unsatisfactory in deeper work for oil. Third, until recently no attention was paid to saving gas pressure or careful drainage. Fourth, the devalorization of the mark stopped substantial oil development and reduced capital to such an extent that a single dry hole was likely to end speculative financing. Fifth, production methods in general not only wasted gas, but allowed evaporation of light fractions to show an average loss of 20 per cent of the value. Now that modern methods can be used by experienced operators, results should be tremendously improved."

North European Oil Corp., which at present represents the only American interests in the production field in Germany, now controls through subsidiaries more than 180,000 acres in the Hanover basin and through Oldenburgische Erdolgesselschaft m.b.H., a subsidiary, has a five-year monopoly on oil rights in Oldenburg Free State, taking in the entire state with the exception of the districts of Delmenhorst and Elsfleth. One unsuccessful well has been drilled in Oldenburg, and three additional tests will be made before October 31, 1931.

**Hanover Most Promising**

The Hanover basin, however, is expected to be the real German flush field in the immediate future. This area produced 104,000 tons of crude oil in 1929, and is expected to show an output of close to 225,000 tons for 1930. The Nienhagen area has shown promise of considerable production of lighter oil, comparable to Mexican and Texas Panhandle crudes, suitable for topping and cracking, and production of easily refinable crude is also looked for in other parts of Germany. Efforts are now being made to exploit natural gas reserves in Germany, and it is expected that 1931 will witness considerable development along this line.

Refinery operations are being gradually widened in Germany as home consumption of refined products increases, and it is expected that a material program of refinery expansion will be undertaken once it is demonstrated that substantial production of crude can be maintained in domestic fields. Low grade crudes produced in Germany are being exploited through hydrogenation, and it is believed that important advances in that field will also be witnessed as the development of hydrogenation on a commercial scale progresses.

**Refining Capacity**

At last reports Germany has 30 refineries in operation, running to a large extent on imported crude. Up to the present year German crude oil has been of such a character that it has been found principally suited only for the production of lubricating oils. With the output of lighter crude developing in Germany, however, refiners in that country are showing more interest in motor fuel production. One modern cracking installation is now in process of construction by the Raky company in Germany, and it is expected that other installations of the kind will follow.

Of the 50 known salt domes in Germany, thus far but four have been touched by the drill, and these only to a limited extent. Introduction of deep drilling methods has already materially increased production in the known fields, and after these deposits have been fully developed, it is expected the industry in Germany will be in a position to conduct wildcatting operations in unproven areas.

American oil companies interested in foreign marketing operations are closely watching field developments in Germany, and the few American oil men who have already actually operated in that country report that the present producing fields have been virtually overrun this year by scouts of many of the major American companies. Development of production in Germany to the extent looked for by some operators now active in that country will probably bring a number of large American companies into the field, with ultimate integration of their operations in Germany through the construction of pipe lines, refineries and marketing organizations to get around the high tariff now levied against imports of crude oil and refined products produced in other parts of the world. Standard Oil Co. of New Jersey, Vacuum Oil Co., Tide Water Associated, The Texas Company and a number of other large American integrated units are at present selling in the German market.

**Possibilities of Market**

The possibilities of the German market are illustrated by the natural expansion in refinery operations in that country during the first half of 1930. The refining industry centering in the Hamburg district during the first six months of 1930 produced a total of 329,591 tons of refined products, compared with 205,350 tons in the first half of 1929 and 185,536 tons in the comparable period in 1928. Gasoline production in the Hamburg refining area during the first half of the current year increased 45 per cent over that for the corresponding months last year, totaling 179,485 tons during the first half of 1930.

To take care of the steadily widening operations of German refineries, imports have shown a decided increase this year. Almost 90 per cent of Germany's total crude requirements are supplied by Mexico and Venezuela. Import totals for the full years 1927, 1928 and 1929 and for the first six months of 1930 were as follows:

| | Total (tons) | From Mexico (tons) | From Venezuela (tons) |
|---|---|---|---|
| 1927 ..... | 40,142 | 1,886 | 31,282 |
| 1928 ..... | 52,672 | 8,509 | 34,702 |
| 1929 ..... | 90,016 | 46,256 | 37,082 |
| 1930 (1st 6 mos.) | 148,212 | 70,694 | 60,131 |

Part of the increase was represented by the accumulation of stocks in anticipation of higher tariff levels, but a large part of the gain was due to actual expansion of refinery operations.

Anglo-Persian Oil Co., Ltd., is materially widening its activities in Germany. Anglo-Persian at the close of 1929 owned 75 per cent of the outstanding stock of the "Olex" company, distributing organization founded by Deutsche Petroleum A.G., and now has an option, expiring January 31, next, to purchase the remaining 25 per cent. The title of "Olex" was revised a few months ago from "Olex" Deutsche Petroleum-Verkaufsgesellschaft to "Olex" Deutsche Benzin-und-Petroleum-Gessellschaft in order to incorporate the initials "BP," under which Anglo-Persian markets motor gasoline in other parts of Europe.

## INDIA'S OIL OUTPUT OFF

Official figures on production of crude petroleum in India for 1929 showed total output of 8,366,049 bbls., a decrease of 375,200 bbls. from the 8,741,249 bbls. produced in 1928. The Punjab was the only producing area to show an increase, reporting for 1929 a total production of 562,376 bbls., against 350,119 bbls. in 1928. Assam decreased from 900,065 bbls. in 1928 to 604,987 bbls. last year, while Burma output dropped from 7,491,065 bbls. in 1928 to 7,198,686 bbls. in 1929.

## FRENCH PHOENIX SUBSIDIARY

Phoenix Oil Products, Ltd., has organized Deco Francaise, a subsidiary company, with capital of 200,000 francs, to take over the company's French business. The Phoenix company, which has hitherto operated in France on only a small scale, has completed plans to substantially widen its marketing operations in that country.

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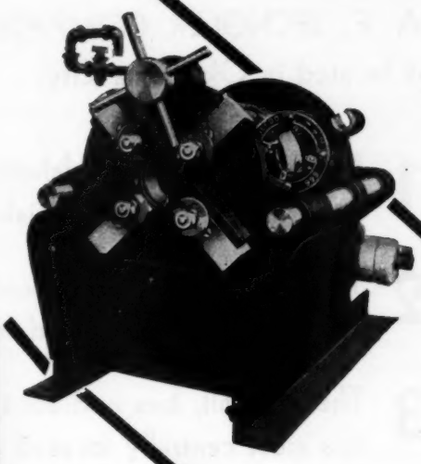
MANUFACTURING PRECISION—FINEST MATERIALS—30 YEARS EXPERIENCE—MEANS THE FINEST PIPE TOOLS KNOWN—"TOLEDOS" ARE GOOD AS GOLD



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DON'T LET THREADING AND CUTTING SMALL PIPE SLOW UP YOUR WORK— . . . . .

—when the sensational "TOLEDO" No. 999, ½" to 2" pipe machine is available at such a low cost.

All sizes from ½" to 2" threaded easily and quickly. 2" pipe is threaded in 30 seconds and cut off in 15 seconds. Smaller sizes even faster. Every thread perfect and standard as the No. 999 uses a separate die head for each size pipe, assuring accurate threads and easy die change.

It's portable! The No. 999 weighs but 275 lbs. and is easily carried by two men. The machine is equipped with a universal motor that can be connected to any 110-volt lamp socket.

The modern way to thread and cut small pipe. Why not investigate it? We will be glad to send circular and low net price.

THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO
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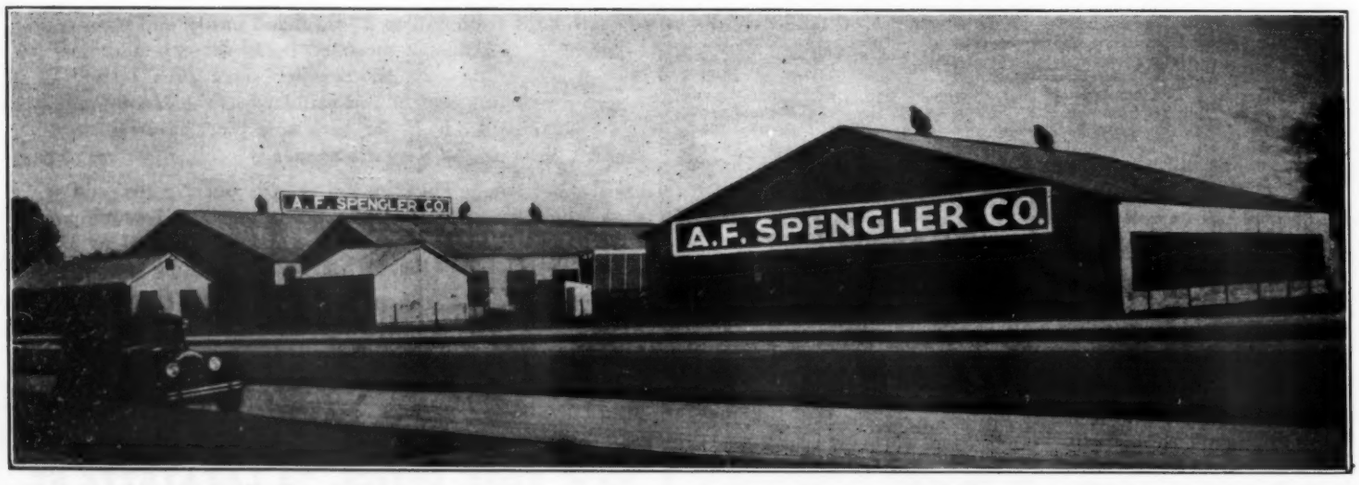


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**OKLAHOMA CITY CHAMBER OF COMMERCE** OKLAHOMA CITY, OKLA.

# GULF COAST FIELDS AND WILDCATS

(Continued from Page 56)

Sun Oil Co.'s No. 19 Bender ..... rigging up.
The Texas Company's No. 2 fee ..... Total depth 4,397 ft.; sidetracking sand and shale 4,268 ft.

Trapshooter Oil Co.'s No. 2 Rosenbaum ..... Shale 4,067 ft.; preparing to pump.
O. M. Wilson's No. 6 Wheeler & Pickens ..... Drlg. gumbo 1,189 ft.

**PIERCE JUNCTION—HARRIS COUNTY**

Gulf Prod. Co.'s No. 2 Manchester Corp. ..... Rig.
Mike Kouri's No. 1 Jones fee, northwest ..... Tested salt water 3,672 ft.; pulling screen to deepen.
Rio Bravo Oil Co.'s No. 20-A Settegast ..... Total depth 5,550 ft.; tested salt water 5,172-5,200 ft.; plugging back to shallower sand.

**BIG CREEK—FORT BEND COUNTY**

Gulf Production Co.'s No. 61 Davis ..... Rig standing.

**LOST LAKE—CHAMBERS COUNTY**

Pure Oil Co.'s No. 5 Lost Lake ..... Granular anhydrite 5,608 ft.; fishing core barrel.
Pure Oil Co.'s No. 12 Lost Lake ..... Drlg. sticky shale 2,785 ft.

**NASH—BRAZORIA COUNTY**

Rycade Oil Corp.'s No. 27 Wisdom ..... Total depth 5,662 ft.; sidetracking sandy lime 4,566 ft.

**SARATOGA—HARDIN COUNTY**

Rio Bravo Oil Co.'s No. 103-A Cotton ..... Drlg. shale and lime 905 ft.
Rio Bravo Oil Co.'s No. 100-A Cotton ..... To pump 539 ft.

**SPINDLETOP—JEFFERSON COUNTY**

Yount Lee Oil Co.'s No. 88 Glayds (workover) ..... Comp. flowing 20 bbls. net oil 60% water 3,632 ft.
Yount Lee Oil Co.'s No. 72 McFaddin ..... Drlg. shale and lime 5,427 ft.
Yount Lee Oil Co.'s No. 143 McFaddin ..... Drlg. packed sand 6,105 ft.

**NORTH DAYTON—LIBERTY COUNTY**

Saxet Oil Co.'s No. 2 Davis ..... Sand and shale showing oil 5,208-13 ft.
Harrison & Abercrombie's No. 1 Blewett ..... Location.
Harrison & Abercrombie's No. 1 Jones ..... Total depth 4,635 ft.; sidetracking 1,501 ft.
Harrison Oil Co.'s No. 4 Quintette (workover) ..... Total depth in salt 6,077 ft.; cmtd. casing 4,276 ft.; to bail open hole.
Harvey Smith's No. 1 Kynerd ..... Drlg. shale 4,696 ft.

**HIGH ISLAND—GALVESTON COUNTY**

Gulf Prod. Co.'s No. 10 Smith ..... Total depth 5,792 ft.; drlg. sidetracked hole 5,470 ft.
Marrs McLean's No. 12 Cade (workover) ..... Drlg. sand 4,430 ft.
Marrs McLean's No. 19 Cade ..... Drlg. hard sand 3,606 ft.
Marrs McLean's No. 20 Cade ..... Rigged up and shut down.

**LIBERTY—LIBERTY COUNTY**

Empire Gas & Fuel Co.'s No. 14 O'Brien ..... Abandoned in salt 4,473 ft.
Sun Oil Co.'s No. 17 Mitchell (workover) ..... Comp. pumping 5 bbls. net oil 896 ft.
Sun Oil Co.'s No. 27 Mitchell (workover) ..... Abandoned 853 ft.
Trinity Petroleum Co.'s No. 1 C. W. Pickett ..... Comp. pumping 10 bbls. net oil 3,342 ft.

**ORANGE—ORANGE COUNTY**

Gulf Prod. Co.'s No. 12 Hagen-Moore ..... Pulling strainer to deepen 3,470 ft
Orange Pet. Co.'s No. 13 Chesson ..... Comp. flowing 160 bbls. fluid, 120 bbls. net oil, 3,504 ft.

**ORCHARD—FORT BEND COUNTY**

Gulf Production Co.'s No. 27 Moore ..... Drlg. gumbo 1,701 ft.

**HULL—LIBERTY COUNTY**

The Texas Company's No. 4 Barron ..... Derrick.

**PORT NECHES—ORANGE COUNTY**

The Texas Company's No. 2 Starks ..... Total depth 6,045 ft.; perforated casing 4,114-44 ft.; to pump.

**CLAY CREEK—WASHINGTON COUNTY**

Sun Oil Co.'s No. 1 Grimm ..... Location.
Sun Oil Co.'s No. 4 Janner ..... Drlg. anhydrite 3,263 ft.
Sun Oil Co.'s No. 1 Freeman ..... Drlg. cap rock showing oil 2,051 ft.

**SOUR LAKE—HARDIN COUNTY**

The Texas Company's No. 307 fee ..... Drlg. hard sand 2,938 ft.

**ESPERSON—LIBERTY COUNTY**

Cranfill-Reynolds Oil Co.'s No. 1-C Kirby fee ..... Spudded.
Cranfill-Reynolds Oil Co.'s No. 6 Moore's Bluff ..... Set 44 ft. screen 2,332 ft.; comp. flowing 180 bbls. pipe line oil 21° gravity.
Cranfill-Reynolds Oil Co.'s No. 7 Moore's Bluff ..... Set 4 jts. screen 2,287 ft.; comp. flowing 74 bbls. pipe line oil 21.1 gravity.
Yount Lee Oil Co.'s No. 3 Moore's Bluff ..... Total depth 7,836 ft.; sidetracking 5,085 ft.

**HANKAMER—LIBERTY COUNTY**

Gulf Prod. Co.'s No. 1 Ezzel ..... Tested salt water 5,808 ft.; pulling screen to deepen.
Gulf Prod. Co.'s No. 10 Boyt ..... Drlg. sand and boulders 2,459 ft.

**BOLING—WHARTON COUNTY**

C. S. Thomas' No. 1 Volney ..... Sanding shale 535 ft.

**REFUGIO—REFUGIO COUNTY**

Brookins et al's No. 1 Kay ..... Shut down 4,320 ft.
Houston Oil Co.'s No. 1 Rooke ..... Drlg. hard shale 5,693 ft.
Houston Oil Co.'s No. 2-A Fannie Heard ..... Drlg. hard shale and lime 5,759 ft.
Houston Oil Co.'s No. 1 Doughty ..... Drlg. sandy shale 5,388 ft.
Houston Oil Co.'s No. 1 Tom Heard ..... Coring sand 6,406 ft.
Houston Oil Co.'s No. 1 O'Connor ..... Total depth 5,913 ft.; plugged to 2,524 ft.
Phillips Petroleum Co.'s No. 1 O'Brien ..... Total depth 6,643 ft.; perforated csg. 6,246-53 ft.; drill stem test showed 750 pounds gas pressure.
O. M. Jones' No. 2 Mitchell (workover) ..... Set 39 ft. screen 5,441 ft.; running tubing.
Luling Oil & Gas Co.'s No. 1 Talman, Blk. 104 ..... Comp. flowing 150 bbls. 6,458 ft.
Luling Oil & Gas Co.'s No. 1 J. W. Kay ..... Standing 4,928 ft.
Luling Oil & Gas Co.'s No. 1 City, Lot 16, Blk. 4 ..... Drlg. gumbo 2,005 ft.
Moody-Seagraves-Karona's No. 1 F. Hayser ..... Drlg. sand and lime 1,961 ft.
Moody-Seagraves Prod. Co.'s No. 1 Linney, Blk. 41 ..... Total depth 6,458 ft.; cmtd. 6⅝-in. casing 6,444 ft.
Moody-Seagraves Prod. Co.'s No. 1-A St. John ..... Total depth 6,644 ft.; plugged to 5,700 ft.
Moody-Seagraves Prod. Co.'s No. 6 Morgan-O'Connor ..... Location.
Moody-Seagraves and Phillips Pet. Co.'s No. 3-B J. F. B. Heard ..... Location.
Moody-Seagraves and Phillips Pet. Co.'s No. 1-C J. F. B. Heard (Independent) ..... Total depth 5,720 ft.; rigged up to work over.
Nichols Oil Co.'s No. 1 Wood ..... Drlg. gumbo and lime 3,216 ft.
Pearson Properties, Inc.'s No. 1 Hornburg ..... Derrick.
Saxet Oil Co.'s No. 1 L. H. Johnson, Blk. 11 ..... Location.
Saxet Oil Co.'s No. 1 Fox heirs (workover) ..... Total depth 3,963 ft.; shut down.
Saxet Oil Co.'s No. 5-A Wilson Heard (workover) ..... Set 22 ft. screen; comp. flowing 500 bbls. 3,683 ft.
Saxet Oil Co.'s No. 1 Ryals (workover) ..... Drlg. oil sand 6,445-53 ft.
Sun Oil Co.'s No. 3 Rea ..... Pulling liner and screen.
L. L. Smith's No. 1 Rodgers ..... Comp. flowing 1,100 bbls.; sand 3,630-48 ft.
L. L. Smith's No. 1 L. M. Rogers, Blk. 87 ..... Cmtd. 12¼-in. casing 1,205 ft.
The Texas Company's No. 2 Shelton (workover) ..... Drlg. shale and lime 6,304 ft.
Union Producing Co.'s No. 11 Fannie Heard ..... Total depth 3,715 ft.; plugged to sand 3,648 ft.; swabbing.
Union Prod. Co.'s No. 2 Moss-Powers, Blk. 109 ..... Derrick.
Union Prod. Co.'s No. 7 O'Brien, Blk. 85 ..... Rig.
Union Prod. Co.'s No. 5 Powers ..... Drlg. 9-in. plug 4,558 ft.
Union Prod. Co.'s No. 8 Powers, Blk. 82 ..... Location.
Union Prod. Co.'s No. 6 Nancy J. Ryals ..... Location.
Union Prod. Co.'s No. 1 Rose Lambert ..... Location.
Union Prod. Co.'s No. 1 Shelton ..... Drlg. sand and shale 515 ft.
Union Prod. Co.'s No. 1 J. Shay ..... Location.
Union Prod. Co.'s No. 3 Mitchell (workover) ..... Drlg. hard shale and lime 6,019 ft.
Union Producing Co.'s No. 5 Mitchell ..... Drlg. sand and shale 465 ft.

## SOUTH LOUISIANA FIELDS

**LOCKPORT—CALCASIEU PARISH**

Union Sulphur Co.'s No. 1 Martha Moss ..... Total depth 7,119 ft.; plugged to 6,732 ft.; cmtd. 4½-in. casing 6,715 ft.
Vacuum Oil Co.'s No. 8 Farquahar ..... Setting up.
Vacuum Oil Co.'s No. 28 Miller ..... Set screen 5,623 ft.
Vacuum Oil Co.'s No. 30 Miller ..... Drlg. gumbo 3,295 ft.
Vacuum Oil Co.'s No. 31 Miller ..... Bldg. bridge to location.

**EDGERLY—CALCASIEU PARISH**

Rex Petroleum Co.'s No. 13 Hunter ..... Drlg.

**HACKBERRY—CAMERON PARISH**

Calcasieu Oil Co.'s No. 23 Watkins ..... Derrick.
Calcasieu Oil Co.'s No. 9 Valery ..... Derrick.
R. E. Seiss' No. 1 Vincent ..... Drill stem stuck 1,996 ft.
The Texas Company's No. 7 State ..... Abandoned in heaving shale 4,920-5,289 ft.
The Texas Company's No. 8 State ..... Location.
Yount Lee Oil Co.'s No. 34 State ..... Location.
The Texas Company's No. 36 State ..... Location.
The Texas Company's No. 37 State ..... Location.
The Texas Company's No. 38 State ..... Location.
The Texas Company's No. 39 State ..... Location.
The Texas Company's No. 40 State ..... Derrick.

**JENNINGS—ACADIA PARISH**

Yount Lee Oil Co.'s No. 9 Housierre Latrielle ..... Sand showing gas and oil 8,609-13 ft.; tried to blow out; drill stem stuck; total depth 8,653 ft.

**VINTON—CALCASIEU PARISH**

Gulf Refining Co.'s No. 4 Gardner (workover) ..... Drlg. 4,109 ft.
Gulf Refining Co.'s No. 5 Gardner ..... Drlg. gumbo 2,267 ft.
Gorbat Oil Co.'s No. 1 Clement Lyons ..... Total depth 4,040 ft.; pulling screen to deepen.
Vinton Pet. Co.'s (Lucky Ten) No. 1 Lizzo ..... Total depth 3,326 ft.; pulling screen to deepen.
Vinton Pet. Co.'s No. 2 Gray (workover) ..... Total depth in salt 3,771 ft.; set strainer 3,336 ft.
Wilson-Broach's No. 5 Wilson ..... Drlg. gumbo 912 ft.

**BAYOU BOUILLON—ST. MARTIN PARISH**

Rycade Oil Corp.'s No. 1 Woodyard Lake ..... Total depth 6,061 ft.; sidetracking sandy shale 4,150 ft.
Rycade Oil Corp.'s No. 4 State ..... Drill stem stuck 4,477 ft.

**SWEET LAKE—CAMERON PARISH**

Pure Oil Co.'s No. 10 Yount Lee ..... Cmtd. 13⅜-in. casing 2,813 ft.

**SULPHUR—CALCASIEU PARISH**

Union Sulphur Co.'s No. 763 Fee ..... Oil sand 4,710-23 ft.; cmtd. 9⅝-in. casing 4,710 ft.
Union Sulphur Co.'s No. 764 Fee ..... Salt 4,453-6,473 ft.; plugged to oil sand 4,258-80 ft.; cmtd. 4½-in. casing 4,258 ft.

## MISCELLANEOUS WILDCATS

### TEXAS

**AUSTIN COUNTY**

Empire Gas & Fuel Co.'s No. 1 Kuntze, San Felipe ..... Rock 5,187 ft.; drill stem stuck.
O'Hara et al's No. 1 Schrader ..... Shut down for fuel 1,794 ft.

**BRAZORIA COUNTY**

The Texas Company's No. 1 Ewin, Harvey Little Sur. ..... Fishing drill stem 7,584 ft.
The Texas Company's No. 1 J. H. Murdock, Fresno ..... Drlg. shale 6,587 ft.
Mills Bennett Prod. Co.'s No. 2 Reece, Allen ..... Rock 2,180 ft.; fishing.
Mills Bennett Prod. Co.'s No. 2 Random, Allen ..... Rig.
Faust et al's No. 5 Faust ..... Drlg. sand 5,759 ft.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights ..... Total depth 4,261 ft.; sidetracking sandy lime 3,986 ft.
Freeport Sulphur Co.'s No. 2 Seaburn ..... Drlg. anhydrite 1,177 ft.
Layne et al's No. 7-A Wisdom, Damon Mound ..... Drlg. shale 2,374 ft.
Rycade Oil Corp.'s No. 2 Seaburn, Stratton Ridge ..... Drlg. hard shell and shale 4,512 ft.
Steel & Strickland's No. 1 Lockbridge ..... Spudded and shut down.
United Oil Syndicate's No. 1 Speer, A. A. Talmadge Sur. ..... Shut down 300 ft.

**CHAMBERS COUNTY**

Chicago Oil Corp.'s No. 1 Lawrence ..... Shut down 4,440 ft.
Shell Pet. Corp.'s No. 2 Herff, Moss Bluff ..... Tested salt water 5,804 ft.; pulling screen.

**GRIMES COUNTY**

Cullen & West's No. 1 Bookman, J. Greenwood Sur. ..... Drlg. shale 3,078 ft.
Deering et al's No. 1 Munker, Darius Gregg Sur. ..... Abandoned 3,521 ft.
Deering & Noble's No. 1 Templeton, 6 miles south of Navasota ..... Preparing to resume drlg. 3,501 ft.

**HARDIN COUNTY**

D. O. Speight's No. 1 fee, near Batson ..... Shut down 2,920 ft.

**HARRIS COUNTY**

Cypress Oil & Development Co.'s No. 2 Kitzman ..... Drlg. gumbo 2,367 ft.
Gulf States Oil Co.'s No. 1 Angsperger ..... Drlg. gumbo 3,550 ft.
Humble Oil & Ref. Co.'s No. 1 Gerring, Mykawa ..... Rig.
Humble Oil & Ref. Co.'s No. 4 Minnetex, Mykawa ..... Drlg. hard sand 3,732 ft.
Sloane Prospecting Co.'s No. 1 Wasova ..... Drlg. lime rock 3,167 ft.
W. C. Turnbow et al's No. 1 Miller, Arthur McCormick Sur. ..... Drlg. sandy shale 5,018 ft.

**JACKSON COUNTY**

Chicago-Gulf Co.'s No. 8 Drushell, Edna ..... Gas sand 3,866-70 ft.; cmt. 6⅝-in. csg. 3,864 ft.
Wright Bros.' No. 2 Lee ..... Sand showing gas 4,147 ft.; to set casing.
Warner-Quinlan's No. 1 Hungerford, Henry Smith Sur. ..... Derrick.

**JEFFERSON COUNTY**

Humble Oil & Ref. Co.'s No. 1 McFaddin, T.&N.O. Sur. 234. Building derrick.
Keith et al's No. 1 Reed-Hankamer ..... Rig.
The Texas Company's No. 4 Pipkin, Big Hill ..... Drlg. hard sand 3,646 ft.

**LIBERTY COUNTY**

Hamm et al's No. 1 Harvard, Davis Hill ..... Drlg. gumbo 301 ft.
Humble Oil & Ref. Co.'s No. 1 Breeding, Moss Bluff ..... Drlg. hard sand 6,946 ft.
Humble Oil & Ref. Co.'s No. 1 Orlando Hylton, Moss Bluff ..... Total depth 6,544 ft.; reaming 6,368 ft.
Humble Oil & Ref. Co.'s No. 1 Sergent, Moss Bluff ..... Total depth 5,860 ft.; running liner.
J. R. Ingram's No. 1 Hornbeck, Clayton, Harper Sur. ..... Derrick.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4 ..... Derrick.

**MATAGORDA COUNTY**

H. C. Cockburn's No. 2 Hawkins, Shepherds Mott ..... Set 3 jts. screen 5,244 ft.; comp. flowing 350 bbls. 39 gravity oil.
Empire Gas & Fuel Co.'s No. 1 Boker, Citrus Grove ..... Drill stem stuck 6,250 ft.; to test gas sand through drill stem.

**MONTGOMERY COUNTY**

Lake Creek Oil Co.'s No. 1 Hunt, south of Conroe ..... Shut down 678 ft.; gumbo.
Price & Whitehead's No. 2 Guerges ..... Shut down 2,956 ft.

**NACOGDOCHES COUNTY**

E. L. Burke et al's No. 1 Latimer, Jose De Los Santos Sur. ..... No report.

**REFUGIO COUNTY**

Blanco Oil Co.'s No. 1 Dorman ..... Shut down 3,120 ft.

**SAN JACINTO COUNTY**

E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs ..... Rig.

**VICTORIA COUNTY**

The Texas Company's No. 1 McFaddin, H. Bonny Sur. ..... Abandoned 6,684 ft.
Lion Oil & Ref. Co.'s No. 2 McFaddin, M. Traviers Sur. ..... Total depth 6,454 ft.; milled out 3,502 ft.; coring sand 3,690 ft.
Newton et al's No. 1 West ..... Shut down 1,550 ft.

### SOUTH LOUISIANA

**CALCASIEU PARISH**

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.
J. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Drlg. shale 6,390 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Rig.
Dr. Thomas et al's No. 1 John Hewitt ..... Location.
Vacuum Oil Co.'s No. 1 Wait, Iowa ..... Drlg. surface formation 74 ft.

Making firing line weld by the Lincoln "Fleetweld" process which utilizes a completely shielded arc, on the Gulf Pipe Line Company of Pennsylvania's new 650-mile oil carrier.

TRADITION

"A chap asked me today what I considered the best record in pipe line welding this year.

Will you make up for me a list of jobs having big mileage . . ."

PROGRESS

"Why do that when the length and breadth of a line aren't its true measurements.

The three measurements of a welded line that determine its outstandingness are Strength and Ductility of the welds and Speed of welding.

And I should say that the outstanding development in this regard is Lincoln's contribution of the 'Fleetweld' process in pipe line construction.

Here's a picture taken on the Gulf Pipe Line Company, of Pennsylvania's new line—650 miles of 10" pipe.

That's in the record class to me because all the firing line welds were made in a completely shielded arc by the Lincoln 'Fleetweld' process, which prevents inclusion of oxides and nitrides in the welds.

The joints are thus stronger and more ductile, but in achieving this they also got greatly increased speed in welding—which counts mightily in a line of this size."

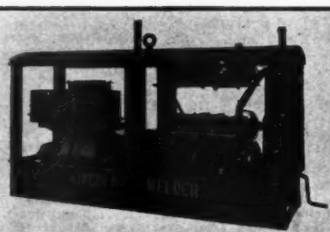
THE LINCOLN ELECTRIC COMPANY

Department No. 26-12 Cleveland, Ohio

*World's Largest Manufacturers of Arc Welding Equipment*

W-166

LINCOLN "Stable-Arc" WELDER



Lincoln "Stable-Arc" welders gasoline engine driven type are built in 200, 300, 400 and 600 ampere sizes.

**CAMERON PARISH**

Shell Petroleum Corp.'s No. 2 State, Black Bayou.....Building derrick foundation.
Shell Petroleum Corp.'s No. 16 Watkins, Black Bayou.....Rig.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w.....Total depth 5,248 ft.; sidetracking broken sand and rock 4,691 ft.
The Texas Company's No. 6 State, Calcasieu Lake.....Drlg. salt 3,206 ft.
The Texas Company's No. 7 State, Calcasieu Lake.....Location.

**IBERIA PARISH**

The Texas Company's No. 6 Vermillion Bay.....Driving piling.

**IBERVILLE PARISH**

Gulf Ref. Co.'s No. 1 Gay, Bayou Choctou.....Drlg. rock 1,835 ft.
Shell Pet. Co.'s No. 5 Wilbert, White Castle.....Coring sand 5,200 ft.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue.....Derrick.
Standard Oil Co.'s No. 8 Wilbert.....Hard red sand and salt 3,646 ft.; set 7-in. casing 3,526 ft.; drilled plug and cored 3,650 ft.; fishing core barrel.
Standard Oil Co.'s No. 1 E. B. and S. P. Schwing, Bayou Blue.....Drlg. gumbo 4,678 ft.
Standard Oil Co.'s No. 3 Schming (workover).....Coring sand 2,570 ft.
Standard Oil Co.'s No. 1 Baist Cooperage, Bayou Blue.....Rdg. derrick.

**JEFFERSON DAVIS PARISH**

H. T. McClain et al's No. 1 Trimble Atterbury, Welsh, Sec. 16-9s-5w.....Drlg. sand and gumbo 672 ft.
Vacuum Oil Co.'s No. 1 Tietje, Roanoke.....Drlg. shale and lime 2,749 ft.

**PLAQUEMINE PARISH**

Gulf Ref. Co.'s No. 2 Buras Levee Board.....Rigging up.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille.....Drlg. shale 2,945 ft.
The Texas Company's No. 4 State, Garden Island.....Total depth 4,414 ft.; drlg. sidetracked hole 3,536 ft.; to set casing.
The Texas Company's No. 5 State, Garden Island.....Location.

**ST. JAMES PARISH**

Convent Oil Co.'s No. 2 Jacobs, Sec. 28-11s-4e.....Rebuilding derrick; total depth 1,834 ft.

**ST. MARTIN PARISH**

The Texas Company's No. 3 Iberville Land.....Derrick.
The Texas Company's No. 4 St. Martin, Hager.....Derrick.
The Texas Company's No. 5 St. Martin, Hager.....Drlg. sand 75 ft.

**ST. TAMMANY PARISH**

Washington-St. Tammany's No. 2 Caussack, Sec. 5-6s-10e..Total depth 1,520 ft.; resetting surface casing.

**TERREBONE PARISH**

Louisiana Gas & Fuel Co.'s No. 9 Minor, Houma.....Total depth 2,906 ft.; fishing.
The Texas Company's No. 1 L.L.&E., Bay St. Elaine.....Derrick.
The Texas Company's No. 5 State, Bay St. Elaine.....Cap rock 1,012 ft.; cmtd. 12½-in. casing 1,009 ft.
The Texas Company's No. 4 State, Caillou Island.....Location.
The Texas Company's No. 5 State, Caillou Island.....Drlg. salt 5,665 ft.
The Texas Company's No. 6 State, Caillou Island.....Location.
The Texas Company's No. 6 State, Bay St. Elaine.....Location.
The Texas Company's No. 3 State, Dog Lake.....Abandoned in salt 6,208 ft.; top salt 5,902 ft.
The Texas Company's No. 4 La. L. & E., Four Isle.....Drlg. sand and shale 6,933 ft.
The Texas Company's No. 2 La. L. & E., Bay Junop.....Drlg. sand rock 6,532 ft.
The Texas Company's No. 6 State, Lake Pelto.....Cmtd. 12½-in. surface casing 1,275 ft.
The Texas Company's No. 6 State, Lake Barre.....Location.
The Texas Company's No. 7 State, Lake Barre.....Derrick.
The Texas Company's No. 8 State, Lake Barre.....Derrick.
The Texas Company's No. 9 State, Lake Barre.....Location.

**VERMILLION PARISH**

Pure Oil Co.'s No. 1 Southwest, Louisiana Land Co., Gueydan.....Setting up.

**WEST FELICIA PARISH**

Putnam Syndicate's No. 1 Como Plantation, Sec. 51-1e-4w. Total depth 3,738 ft.; fishing stuck drill stem.

## WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 54)

**LA SALLE PARISH**

La. G. & F. Co.'s No. 2-B Tensas, 1,980 ft. W, 1,321 ft. S, NE cor., Sec. 23-7-4.....Rig up.

**NATCHITOCHES PARISH**

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10.....S.D. 3,718 ft.
J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10..Drlg. hard chalk 1,780 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10....Fishing 600 ft; D.S; T.D. 1,150 ft.
Gulf Ref. Co.'s No. 1 Bodcaw, 1,910 ft. S, 605 ft. W, NE cor., Sec. 13-13-8.....Cmtd. 12½-in. 930 ft.

**RED RIVER PARISH**

Lucky Strike Oil Co.'s No. 1 Chaffraix, 200 ft. S, 200 ft. E, C, Sec. 33-12-10.....S.D; contract depth 3,000 ft.
T. G. Shaw's No. 1 Wilkerson, 460 ft. N, 200 ft. W, SE SE, Sec. 4-12-10.....Standing full oil; T.D. 2,838 ft; W.O.S.R.

**RICHLAND PARISH**

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5.....Derrick.
W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-17.....Derrick.
Island Gas Co.'s No. 1 Noe, 1,902 ft. N, 660 ft. W, SE cor., Sec. 3-16-5.....Top Monroe gas rock 2,365 ft; bailed dry 2,419 ft. and 2,460 ft; D.S. test 2,479 ft., 2,509 ft. and 2,539 ft; S.W. 2,560-96 ft; S.D. 2,630 ft.
La. G. & F. Co.'s No. 1 Clanton, 262 ft. E, 618 ft. N, SW cor. NW SE, Sec. 23-17-6.....Location.
Palmer Corp.'s No. 2 Seubert, 660 ft. N, 660 ft. W, SE cor. SE NW, Sec. 35-17-5.....Location.
Pelican Nat. Gas Co.'s No. 1 Faust Bros., 1,980 ft. E, 660 ft. N, SW cor. NW, Sec. 13-17-5.....Cmtd. 6-in. 2,277 ft.

**SABINE PARISH**

Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11..Began drlg. Nov. 20; cmtd. 10-in 105 ft.
Tom David's No. 1 Smith, 460 ft. N, 200 ft. W, SE cor. SE SE, Sec. 27-8-10.....S.D. 2,150 ft.
Esaco Pet. Co.'s No. 1 La. Long Leaf Lbr. Co., 487 ft. N, 44 ft. W, SE cor. SW SW, Sec. 35-8-11.....Began drlg. Dec. 1; cmtd. 10-in. 107 ft.
Eylers O. & G. Co.'s No. 1 Frazier, 330 ft. S, 330 ft. W, NE cor. NW SW, Sec. 10-8-11.....Top Zwolle marl 2,163 ft. and cmtd. 8¼-in.
Franks et al's No. 1 Dew, 200 ft. N, 300 ft. E, SW cor. SE, Sec. 22-8-11.....S.D. wtr. 1,325 ft.
R. L. Gay, tr.'s No. 1-A Sabine Lbr. Co., 212 ft. S, 170 ft. E, NW cor. SE NW, Sec. 1-7-12.....Drlg. 1,963 ft.
Lacy Jessup Oil Co.'s No. 1 Brown Lbr. Co. (was Lacey et al's), C NW NE, Sec. 28-8-10.....Coring 2,245 ft.
Lacey Prod. Co.'s No. 1 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 30-8-11.....Dry; no show 2,370 ft; bailing to test 2,560 ft.
Lacey Prod. Co.'s No. 2 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 32-8-12.....Began second hole Nov. 26; cmtd. 10-in. 100 ft; drlg. 1,950 ft.
Lide et al's No. 1 Ponder, 990 ft. N, 990 ft. W, C, Sec. 15-7-11.....Top marl 2,395 ft; cmtd. 6-in. 2,385 ft; T.D. 2,407 ft; tested dry 2,412 ft; 100 ft. oil in hole from 2,422 ft; D.S. test dry; show oil and gas 2,800 ft; tested dry.
Towery Drlg. Co.'s No. 1 Sabine Lbr. Co. (was D. M. Lide's), 330 ft. S, 330 ft. E, NW cor., Sec. 12-7-12..Began drlg. Nov. 26; cmtd. 10-in. 44 ft; drlg. 1,030 ft.
Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E, C, NE, Sec. 31-9-12.....Rig up.
Lyons & Neely's No. 1 Cooper, 300 ft. N, 330 ft. W, SE cor. SW NW, Sec. 32-8-11.....Location.
McDaniel & Lieber's No. 2 Batson, 480 ft. S, 220 ft. E, NW cor. SW SE, Sec. 16-8-12.....Drlg. 2,553 ft; S.D.
Frank Melat, Inc.'s No. 1 Sabine Lbr. Co., 330 ft. N, 330 ft. E, SW cor. SW SW, Sec. 6-7-11.....Rig up.
Frank Melat, Inc.'s No. 2 Sabine Lbr. Co., 330 ft. S, 330 ft. W, NE cor. NE NW, Sec. 14-7-12.....Began drlg. Dec. 1; cmtd. 10-in. 100 ft.
Merritt et al's No. 1 La. Long Leaf Lbr. Co., S½ NE NE, Sec. 33-8-11.....Cmtd. 6-in. 2,298 ft; T.D. 2,301 ft.
P. & G. Oil Co.'s No. 1 Williams, 330 ft. S, 330 ft. W, NE cor. SE NW, Sec. 21-7-12.....Location.
Paramount O. & G. Co.'s No. 1 Woolems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12.....Small show oil 2,580 ft.
Pelican Nat. Gas Co.'s No. 7 La. Long Leaf Lbr. Co., 300 ft. S, 300 ft. W, NE cor. NW SW, Sec. 10-7-11....Derrick.
Pelican Nat. Gas Co.'s No. 7 Sabine Lbr. Co., 300 ft. S, 300 ft. W, NE cor., Sec. 11-7-12.....Location.
D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12.....Made 30-ft. hole 3,280-3,310 ft; S.D.
C. W. Robinson's No. 1 Tramwell, 300 ft. W, 200 ft. N, SE cor. NE NE, Sec. 5-7-11.....Began drlg. Nov. 23; cmtd. 10-in. 80 ft; drlg. 1,050 ft.
T. G. Shaw et al's No. 1 Sabine Lbr. Co., 150 ft. N, 150 ft. E, SW cor., Sec. 1-7-12.....Derrick.
Southland Oil Co.'s No. 1 Carter, 1,030 ft. W, 345 ft. N, SE cor. SE NE, Sec. 36-8-12.....Derrick.
A. H. Tarver, trustee's No. 1 Baker, 330 ft. S, 330 ft. E, NW cor. NE, Sec. 36-8-12.....Drlg. 1,750 ft.
A. H. Tarver, trustee's No. 2 Baker, Sec. 36-8-12.....Dropped; reported location in error.
Toteco Oil Co.'s No. 1 La. Long Leaf Lbr. Co., 325 ft. S, 100 ft. W, NE cor. NW, Sec. 18-6-12.....Tested S.W. with estimated 200,000 ft. gas 4,245 ft.
The Texas Co.'s No. 1 Stoker, 330 ft. E, 300 ft. S, C, Sec. 10-7-11.....Began drlg. Dec. 1; cmtd. 10-in. 104 ft; drlg. 175 ft.
Triangle Pet. Co.'s No. 1 Sabine Lbr. Co. (was R. B. Whittle's), 330 ft. N, 330 ft. E, SW cor. SE SW, Sec. 36-8-12.....Drlg. 1,072 ft.
Wilson & Son's No. 1 Gandy-Garrett, NW SW, Sec. 4-5-12 (portable rig).....Drlg. 1,920 ft.
John Woodley's No. 1 Sabine Lbr. Co., 400 ft. S, 330 ft. W, NE cor. SE, Sec. 12-8-12.....Location.

**TENSAS PARISH**

Seip et al's No. 1 Fowler, C SW NE, Sec. 10-10-10.....S.D. 905 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12.....Reamed to bottom; S.D. 2,780 ft.

**WEBSTER PARISH**

Coyle, trustee's No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11.....Derrick.
Girard Oil Co.'s No. 1 R. H. Miller, 330 ft. S, 990 ft. W, C, Sec. 16-18-10.....Cmtd. 12½-in. 200 ft; drlg. 600 ft.

**ARKANSAS**

**CHICOT COUNTY**

H. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-18-3.....Hole clean; S.D. fuel; T.D. 2,925 ft.

**CLAY COUNTY**

S. C. Jeffries, trustee's No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-8.....Tested estimated 1,000,000 ft. gas 280 ft; cmtd. 10-in. 305 ft; S.D. 330 ft.

**CLEBURNE COUNTY**
**(Cable tools)**

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9.....U.R. 2,300 ft; T.D. 3,740 ft.

**COLUMBIA COUNTY**

J. W. Olvey et al's No. 1 Kate George, 200 ft. N, 245 ft. E, SW cor. NW SW, Sec. 29-18-20.....Drlg. 3,460 ft.

**DALLAS COUNTY**

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., NW cor., Sec. 11-9-15.....Derrick.

**FRANKLIN COUNTY**

Red Bank Oil Co.'s No. 1 Hamm, 660 ft. N, 660 ft. E, C, Sec. 33-10-6.....O.W.D.D; completed Oct. 8; estimated 6,500,000 ft. gas; 775 lbs. rock, 3,750 ft; plugged back to 3,050 ft; old T.D. 3,750 ft.

**GARLAND COUNTY**
**(Cable tools)**

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-8-19.....Hole full S.W; pulling 5 3/16-in; T.D. 3,756 ft.

**HOT SPRINGS COUNTY**

Anisman et al's No. 1 Hinson est, NE NE, Sec. 19-4-16... (portable rig).....Claim gas show 14-ft. sand 1,604 ft; arranging to cmt. 5 3/16-in.
John Watkins No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16...Cmtd. 12½-in. 42 ft; S.D. 110 ft.

**LAFAYETTE COUNTY**

McIver et al's No. 1 Hottle, NW cor. NE, Sec. 1-20-6...Began drlg. Nov. 8; S.D. 21 ft.

**LINCOLN COUNTY**

B. F. Thompson, trustee's No. 1 McGhee, 330 ft. S, 150 ft. W, C, Sec. 8-8-7.....Rigging up.

**LITTLE RIVER COUNTY**

A. L. Buck's No. 1 Greason, NW NW, S c. 25-12-32.....S.D. 2,502 ft.

**LOGAN COUNTY**

Ark.-La. P. L. Co.'s No. 1 Jno. Jansen, 350 ft. S, 455 ft. E, NW cor. NE NE, Sec. 35-8-24.....Drlg. hard sand 1,200 ft.
J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26.....U.R. 5 3/16-in. 3,570 ft; T.D. 3,610 ft.

**MADISON COUNTY**
**(Cable tools)**

J. W. Baxter's No. 2 Hallin, C, Sec. 17-16-25.....T.A. 405 ft.
J. W. Baxter's No. 3 Hallin, NE SW, Sec. 1-17-26.....Drlg. 50 ft.

**MILLER COUNTY**

Bullock Oil Co.'s No. 1 Hervey, SE NE, Sec. 33-14-26....S.D. 2,380 ft; hole clean.
East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26.....2-ft. sand 888 ft. dry; S.D; W.O. 900 ft.
E. & F. Oil Co.'s No. 1 E. L. Beck, 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26.....Sidetracking short string 4½-in; T.D. 2,961 ft.
Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26.....Began drlg. Oct. 13; cmtd. 10-in. 93 ft.
Lenz et al's No. 2 Johnson, SE cor., Sec. 24-15-16.....Cored sand showing oil; T.D. 3,600 ft.
Lenz et al's No. 3 Johnson, 250 ft. W, 150 ft. N, SE cor. NE NW, Sec. 24-15-26.....Coring 2,825 ft.
Saizer & McRae's No. 1 Rose, SW cor. NE NW, Sec. 9-16-26.....S.D. fuel 475 ft.

**OUACHITA COUNTY**

Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17 S.D. 2,907 ft.
Copenhaven et al's No. 1 Elliott, Sec. 11-15-17.....Coring 2,000 ft.
Graves Bros.' No. 1 Walker, 350 ft. N, 280 ft. E, SW cor., Sec. 9-14-18.....Hole clean; arranging to deepen 1,873 ft.
A. B. Turner, trustee's No. 1 Dave Brown, 220 ft. N, 220 ft. E, SW cor., Sec. 23-15-18.....Cmtd. 6⅝-in. 2,164 ft; T.D. 2,178 ft; 14-ft. sand.

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**PIKE COUNTY**

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S. NE cor. NE SE, Sec. 26-8-14.....Drlg. 1,850 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E. NW cor. SW SE, Sec. 31-3-24.....Derrick.

**POPE COUNTY**

Ark.-La. P. L. Co.'s No. 2 McFaddin, 685 ft. N, 485 ft. W, SE cor. NE SW, Sec. 15-9-21.....Drlg. hard sand 2,650 ft.

**SCOTT COUNTY**

Ark. Valley Gas Co.'s No. 1 Turner, C SE, Sec. 27-5-30... Location.
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26.....Sidetracking tools 1,436 ft; T.D. 1,540 ft.

**UNION COUNTY**

S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17.....S.D. 2,750 ft.
H. L. Hunt's No. 5 Swilly, 330 ft. S, 330 ft. W, NE cor., Sec. 28-16-16.....W.O.S.R; 2,000 ft. fluid; T.D. 2,689 ft.
H. L. Hunt's No. 6 Swilly, 330 ft. N, 330 ft. W, SE cor., Sec. 21-16-16.....Cmtd. 6⅝-in. 2,700 ft; T.D. 2,711 ft.
Marine Oil Co.'s No. 5-A Thompson, 330 ft. S, 330 ft. W, NE cor. SW NE, Sec. 10-18-13.....D.S. test 3,530 ft; 15 joints oil in 6 minutes; 5-ft. sand; cmtd. 6⅝-in. 3,525 ft.
Marine Oil Co.'s No. 1-F Winn, Sec. 10-18-13.....Hole full fluid 50% S.W; waiting on air; T.D. 3,604 ft.
Oil Field Corp.'s No. 1 Simmons, 330 ft. S, 330 ft. E, NW cor., Sec. 13-18-13.....D.S. test 3,556-3,602 ft; S.W; T.A. 3,602 ft.

**VAN BUREN COUNTY**

Glenn Kohle et al trustees' No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13..... S.D. 50 ft.

**WASHINGTON COUNTY**
**(Cable tools)**

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32.....S.D; W.O. 602 ft.
C. H. Willughby's No. 1 Jones, Sec. 34-16-30.....S.D. 1,697 ft.
Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32 U.R. 8-in. to T.D. 1,500 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29. Drlg. 1,650 ft.

**YELL COUNTY**
**(Cable tools)**

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21.....S.D. 5,710 ft.

**EAST TEXAS**

**BOWIE COUNTY**

Joe Burnham et al's No. 1 G. W. Burnett, 150 ft. W, 400 ft. S, NE cor. G. W. Burnett 76 ac., in W. H. Janes Sur.....Base Austin chalk 3,095 ft; top red beds 3,145 ft; S.D. 3,150 ft.
Maud-Redwater Oil Co.'s No. 1 Merritt, 175 ft. N, 175 ft. E, SE cor. G. W. Hardige 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur.....S.D. 500 ft.
Lee Timberlake et al's No. 2 Tidwell, 250 ft. E, 250 ft. S, NW cor. Tidwell tr. in Jos. Eskell Sur.....Began drlg. Dec. 2.

**CAMP COUNTY**

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr., in J. H. Murphy Sur.....Cored sand 3,510-20 ft; drlg. 3,600 ft.

**CASS COUNTY**

Wesley Morse et al's No. 1 Henderson, 800 ft. E, 1,100 ft. S, NW cor. C. E. Bailey Sur.....Derrick.
Phillips Pet. Co.'s No. 1 J. R. Olds, 300 ft. N, 170 ft. E, SW cor., J. A. Stephenson Sur.....Base chalk 2,480 ft; coring 3,160 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur.....Cored sandy lime; small show oil and gas 2,257 ft; S.D. 2,270 ft.
The Texas Co.'s No. 1 Citizens State Bank, 2,793 ft. W, 300 ft. S, NE cor., Jas. Watkins Sur.....Drlg. lime 3,888 ft.

**MARION COUNTY**

P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur.....Claim 5-ft. core showing oil 1,884 ft; S.D. waiting for 8-in. csg.

**RED RIVER COUNTY**

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur.....S.D. 2,865 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur..... Swedging 2 joints collapsed 8-in; arranging to cmt. 6⅝-in. and packer 2,182 ft.

**SABINE COUNTY**

Benedum & Trees Oil Co.'s No. 1 Nona Mills Lbr. Co., Jas. Mason Sur.....Drlg. hard lime 4,480 ft.

**SHELBY COUNTY**

Chapparell Oil Co.'s No. 2 Holt, Matthew Moore Sur.....Reamed to bottom 3,090 ft; coring.
G. R. Ridgeway's No. 1 G. D. Parker, 4,980 ft. E, 750 ft. N, SW cor., Jessie McKelvey Sur.....S.D; W.O. 3,018 ft.

**MISSISSIPPI**

**ATTALA COUNTY**

Ark.-La. P. L. Co.'s No. 1 H. A. Moore, 500 ft. W, 330 ft. S, N cor. SE NW, Sec. 2-15-5e.....Drlg. sandy shale 3,182 ft.

**CLAY COUNTY**

Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5.....Drlg. 2,453 ft.

**CHICKASAW COUNTY**

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20-13-3.....S.D. 1,700 ft.

**GRENADA COUNTY**

Carter-Pace's No. 1 Dubard (was F. E. West et al's), NW NW, Sec. 18-22-4.....Derrick.

**HINDS COUNTY**

Attkison & Dyers' No. 1 Wiggins, Sec. 33-6-1e..... Cmtd. 12½-in. 74 ft; drlg. 450 ft.
Cane River O. & G. Co.'s No. 1 Kabbles, NE cor. SW SW, Sec. 15-5-1e.....Cored red sand rock 2,900 ft.
Gulf Ref. Co.'s No. 1 McLaurin, 1,230 ft. S, 1,410 ft. W, NE cor., Sec. 30-6-2e.....Cmtd. 9-in. 2,466 ft.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e.....Rig up.
Jackson Oil Co.'s No. 1 Central Cotton Oil Co., NW cor. SW NW, Sec. 3-5-1e.....Rig up.
Dr. Barney Kennedy's No. 1 fee, 150 ft. E, 200 ft. N, SW cor. NE NE, Sec. 34-6-1e.....Location.
Love Pet. Co.'s No. 1 Maley, SE cor. NW, Sec. 11-5-1e....Top Midway 2,387 ft; top chalk 2,487 ft. and cmtd. 6⅝-in; claim oil show estimated 10 bbls., 13° gravity clean oil, no gas 2,487-90 ft; flowed 25 bbls. oil and 300 bbls. wtr. 105° F; T.D. 2,494 ft; blowing wild into pits.
Love Pet. Co.'s No. 1 Morton Lbr. Co., 1,500 ft. E, 1,525 ft. N, SW cor., Sec. 34-6-1e.....Cmtd. 6⅝-in. 2,389 ft.
Miss. Pet. Co.'s No. 1 Solvent Inv. Co., NE cor. NE SW SW, Sec. 14-5-1w.....Drlg. 2,900 ft.
Miss.-Tex. Oil Co.'s No. 1 Negro Fair Assn., SW cor. NW SE, Sec. 28-6-1e.....S.D. 2,805 ft.
Mrs. Reeder et al's No. 1 State, SE cor. NW NW, Sec. 25-6-1e.....W.O; T.D. 2,905 ft; will drop from report.
Tri-State O. & G. Co.'s No. 1 Wilson, SW cor. SE NE, Sec. 23-6-1e.....Derrick.

**HUMPHRIES COUNTY**

E. S. Steele et al's No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w.....Set 12½-in. 60 ft; S.D.

**JASPER COUNTY**

Bay Springs Pet. Co.'s No. 1 Keys, C NW NE, Sec. 21-2-10.....Rig up.

**LAUDERDALE COUNTY**

J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-16-14 ....Derrick.

**LAFAYETTE COUNTY**

Banks-Good et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 22-10-1w.....Derrick.

**MADISON COUNTY**

Barney Kennedy et al's No. 1 Raymond, 300 ft. E, 1,800 ft. N, SW cor., Sec. 32-7-2e.....Cmtd. 12½-in. 706 ft.

**MONROE COUNTY**

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19.....Resumed operations Oct. 2; recovered lost bailer; S.D; W.O. 3,007 ft.

Amory Pet. Co.'s No. 3 Carter, C SE SE, Sec. 7-13-17.....Drlg. sandy lime 1,935 ft.

Amory Pet. Co.'s No. 1 Harris, SW cor. SE SE, Sec. 18-13-17 .....Derrick.

Associated Oil Co.'s No. 1 School, SW cor. SW SE, Sec. 16-15-17 .....S.D; W.O. 32 ft.

Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19 ..... Cmtd. 10-in. 694 ft; black lime; drlg. 735 ft.

**RANKIN COUNTY**

R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e...S.D. 900 ft.

Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e....Rig up.

Love Pet. Co.'s No. 1 Moore (was Interior Oil Co.'s), 660 ft. N, 660 ft. W, SE cor. NW NW, Sec. 28-6-2e....S.D. 900 ft.

Millstein O. & G. Co.'s No. 1 Gammill-Hartsfield, 400 ft. E, 400 ft. N, SW cor. SW SE, Sec. 6-5-2e..... Drlg. shale 1,420 ft.

Sabine O. & G. Co.'s No. 1 Taylor, SE cor. SW NE, Sec. 6-5-2e .....S.D. 2,320 ft; waiting for csg.

Jackson Royalties, Inc.'s No. 1 Pate, NE cor. NE SE, Sec. 12-5-1e .....Began drlg. Oct. 5; cmtd. 12½-in. 280 ft; drlg. shale 2,120 ft.

Cleve Love et al's No. 1 Brown, C NW SE, Sec. 12-5-1e..Began drlg. Oct. 9; drlg. 1,200 ft.

Pearl River O. & G. Co.'s No. 2 Pate, SE cor. SW SE, Sec. 12-5-1e ..... Began drlg. Oct. 7; cmtd. 10-in. 292 ft.

**WARREN COUNTY**

Raymond A. Moore et al's No. 1 Clark, SE, Sec. 31-16-5 (no check) .....Derrick.

Vicksburg Oil Co.'s No. 1 Dornbush, 2,080 ft. S, 1,520 ft. W, NE cor., Sec. 8-18-5 .....S.D. 1,600 ft.

**WINSTON COUNTY**

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14. Drlg. chalk 1,605 ft; (C.D.).

## LOUISIANA-ARKANSAS PROVEN AREAS

(Rotary operations unless otherwise designated.)

(Continued from Page 54)

**CLAIBORNE PARISH—SUGAR CREEK**

Triangle Drlg. Co.'s No. 1 Brownfield, 660 ft. S, 660 ft. E, NW cor. NE, Sec. 6-19-5 .....Drlg. anhydrite 4,227 ft.

**DE SOTO PARISH—HOLLY**

Standard Oil Co.'s No. 1-B Dowling Bros., 200 ft. N, 396 ft. W, SE cor. SW SW, Sec. 32-14-13.....13-ft. broken sand 2,813-26 ft; cmtd. 6⅝-in. 2,813 ft.

Standard Oil Co.'s No. 1 Hoell, 264 ft. E, 170 ft. N, SW cor., Sec. 32-14-13 .....Derrick.

**LA SALLE PARISH—URANIA**

Montugu Oil Co.'s No. 11 Zenoria Lbr. Co., 660 ft. S, 660 ft. W, NE cor. .....Began drlg. Nov. 25; cmtd. 10-in. 105 ft; 6-in. 1,491 ft; W.O.S.R. 1,513 ft.

**MOREHOUSE PARISH**

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4 .....Location.

**OUACHITA PARISH**

Bahan & Bahan's No. 1 Fabolio, 660 ft. S, 660 ft. W, NE cor., Sec. 35-19-3 .....Location.

Bahan & Bahan's No. 1 Smith, 249 ft. W, 535 ft. N, SE cor. SW, Sec. 24-18-3 .....Location.

La. G. & F. Co.'s No. 4 fee (was Industrial Gas Co.'s), 1,334 ft. N, 652 ft. W, SE cor., Sec. 2-19-3.....Cmtd. 6-in. 2,122 ft.

Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4.....Location (reported drlg. in error).

Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4.....Cmtd. 6-in. 2,135 ft.

United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4 .....Location.

**RICHLAND PARISH**

W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 .....Rig moved; derrick.

Franklin O. & G. Co.'s No. 1 Thompson, 660 ft. N, 165 ft. W, SE cor. NE, Sec. 14-16-6.....Location.

Hope Prod. Co.'s No. 2 H. L. Thomason, 669 ft. E, 660 ft. S, NW cor., Sec. 11-16-6.....Location.

Palmer Corp.'s No. 1 Holdiness, 552 ft. S, 2,215 ft. W, NE cor., Sec. 8-16-6 .....Cmtd. 6-in. 2,298 ft.

Southern Carbon Co.'s No. 2 Cooper, 660 ft. N, 3,551 ft. E, SW cor., Sec. 13-16-6.....Location.

Southern Carbon Co.'s No. 1-B Hale, 1,320 ft. N, 660 ft. E, SW cor., Sec. 15-16-6 .....Began drlg. Nov. 28; cmtd. 12-in. 180 ft.

Southern Carbon Co.'s No. 2-B J. H. Hemler, Sec. 14-16-6. Began drlg. Nov. 26; cmtd. 12-in. 184 ft; 8-in. 772 ft.

Southern Carbon Co.'s No. 1-D M. and M. McCoy, 1,-980 ft. S, 660 ft. W, NE cor., Sec. 30-16-6.....Began drlg. Dec. 1.

Southern Carbon Co.'s No. 7 F. B. and E. A. Sartor, 2,540 ft. S, 660 ft. E, NW cor., Sec. 17-16-7.....Location.

Southern Carbon Co.'s No. 1-E Thomason, 3,300 ft. S, 100 ft. E, NW cor., Sec. 32-16-6.....Cmtd. 8-in. 830 ft; drlg. 1,390 ft.

State Line O. & G. Co.'s No. 1-A Boughton, 1,883 ft. E, 127 ft. S, NW cor. SW, Sec. 33-16-6.....S.W. 2,475 ft; arranging to plug back to 2,450 ft.

State Line O. & G. Co.'s No. 1 Hewitt, 1,721 ft. S, 957 ft. E, NW cor. SW, Sec. 32-16-6.....Fishing 9 joints tubing; T.D. 2,-475 ft.

State Line O. & G. Co.'s No. 1 Noble-Morris, 917 ft. N, 389 ft. W, SE cor. SE SW, Sec. 35-16-5.....Derrick.

United Carbon Co.'s No. 1 J. A. Hemler, 660 ft. W, 660 ft. N, SE cor., Sec. 5-16-6.....Drlg. 2,416 ft.

United Carbon Co.'s No. Lindow, 1,980 ft. S, 37 ft. E, NW cor., Sec. 15-16-6.....Derrick.

**SABINE PARISH—PLEASANT HILL**

F. A. Bartlett, Jr.'s No. 1 Logan, 200 ft. S, 200 ft. E, SW cor., Sec. 27-10-12 .....Cmtd. 6-in. 2,945 ft.

**SABINE PARISH—ZWOLLE**

W. M. Coates' No. 1 Sabine Lbr. Co., 424 ft. N, 424 ft. E, SW cor. NW NW, Sec. 1-7-12.....D.S. test 2,205 ft; dry; drlg. 2,-393 ft.

Tom Davis' No. 1 Holliday (was T. D. Allison's), Sec. 31-8-12, Zwolle Townsite .....S.D. wtr. 1,350 ft.

F. M. Hood's No. 1-B Winston (was No. 2), 700 ft. E, 425 ft. S, NW cor., Sec. 31-8-12, Zwolle Townsite.. S.D. 1,065 ft.

Ab Jones et al's No. 1 Ferguson, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 33-8-12.....Rig up.

Ohio Oil Co.'s No. 1 Brown, 330 ft. N, 330 ft. W, SE cor. SW SW, Sec. 35-8-12.....Derrick.

Pelican Nat. Gas Co.'s No. 6 La. Long Leaf Lbr. Co., 200 ft. N, 200 ft. W, SE cor. NW SW, Sec. 4-7-11..2,000 ft. oil; fishing bailer; T.D. 2,347 ft.

H. W. Perritt, tr.'s No. 1 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. SW, Sec. 2-7-12.....Cmtd. 6-in. 2,182 ft.

Wheatcroft et al's No. 1 Sabine Lbr. Co., SW NE, Sec. 31-8-12 .....S.D. 2,495 ft.

**SABINE PARISH—BLUE LAKE**

R. L. Gay's No. 9 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 18-7-13.....Show oil and gas 2,234 ft; tested dry; D.S. test 2,520 ft; dry; drlg. 2,620 ft.

**UNION PARISH**

Bahan & Bahan's No. 1 Barr, 833 ft. S, 833 ft. E, NW cor., Sec. 16-20-4 .....Cmtd. 6-in. 2,071 ft.


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**WEBSTER PARISH—SAREPTA**

Cassidy & Davis' No. 1 Nickerson, 300 ft. S, 300 ft. W, NE cor. SW, Sec. 29-23-10.....Derrick.

**ARKANSAS**

**JOHNSON COUNTY**
**(Cable tools)**

Ark.-La. P. L. Co.'s No. 1 Hudson et al, 660 ft. N, 545 ft. E, SW cor. SE NE, Sec. 14-10-24.....Drlg. hard sand 1,720 ft.
Ark.-La. P. L. Co.'s No. 1 Mattie Kelly, 330 ft. S, 657 ft. E, NW cor. SW SW, Sec. 14-10-24.....Arranging to cmt. 6⅝-in. 2,910 ft.
River Valley Gas Dev. Co.'s No. 1 W. F. Collier, 350 ft. S, 330 ft. E, NW cor. SE SE, Sec. 21-9-25.....Drlg. 860 ft.

**OUACHITA COUNTY—SMACKOVER**

L. H. Hamilton's No. 3 Doyle, 100 ft. E, 400 ft. N, SW cor. SE SE, Sec. 23-15-16.....Sidetracking 400 ft. 6-in.; T.D. 2,020 ft.

**SEBASTIAN COUNTY**

Ozark Nat. Gas Co.'s No. 1 Wright, C NW NE, Sec. 29-8-30.....Drlg. 1,109 ft.

**UNION COUNTY—CHAMPAGNOLLE**

Lion Oil Ref. Co.'s No. 1 Sullivan, 330 ft. N, 330 ft. W, SE cor. SE NW, Sec. 12-17-14.....Tested 15,000,000 ft. gas, 14-ft. sand; T.D. 2,993 ft.

Lion Oil Ref. Co.'s No. 2 Sullivan, 933 ft. S, 200 ft. W, NE cor. NE NW, Sec. 12-17-14.....Bailing to test; T.D. 2,995 ft.
Ohio Oil Co.'s No. 10 Crain, 330 ft. S, 330 ft. W, NE cor. SE SW, Sec. 1-17-14.....Cmtd. 6⅝-in. 2,978 ft; T.D. 2,990 ft.
Ohio Oil Co.'s No. 11 Crain, 330 ft. N, 330 ft. W, SE cor. SE SW, Sec. 1-17-14.....Derrick.

**UNION COUNTY—EL DORADO**

Rice Drlg. Co.'s No. 1 Watley, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15.....S.D; repairing rig; T.D. 1,520 ft.

**UNION COUNTY—SMACKOVER**

J. E. Crosbie et al's No. 1 G. L. Murphy, 300 ft. N, 300 ft. W, SE cor., Sec. 13-16-16.....Cored white sand 3,162 ft.

**EAST TEXAS**

**HARRISON COUNTY**

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W. Mile Post 27, in J. Womack Sur.....Location.
Shell Rock Pet. Co.'s No. 1 Oliver Dougherty, W. D. Burris Sur.....S.D. brown chalk 3,540 ft.

**PANOLA COUNTY**

Ark.-La. P. L. Co.'s No. 2-A G. W. Brumble, 477 ft. W, 473 ft. S, NW cor. Jno. Womack Sur., in B. C. Jordan Sur.....Drlg. anhydrite 4,536 ft.
W. G. Banks et al's No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur.....Rig up.
S. E. Bell et al's No. 1 Burnett Lbr. Co., C, S. B. Hendricks Sur.....Drlg. lime 2,858 ft.
Creighton & Hart's No. 1 Greeny-Kyle, C, Greeny-Kyle 60 ac., Jas. Tippett Sur.....Drlg. hard lime 3,490 ft.
Texas-La. Prod. Co.'s No. 1 Baker, 1,000 ft. N, 550 ft. W, SE cor., 63-ac. Baker tr., in B. C. Jordan Sur.....Drlg. hard lime 3,383 ft.
Knox et al's No. 1 Dunham (was Jackson et al's), 150 ft. W, 150 ft. N, SE cor. M. I. Dunham 29 ac., in Chas. Haley Sur.....Coring 2,807 ft.
Nat. Gas Prod. Co.'s No. 1 H. H. Alvord, 6,777 ft. S, 6,162 ft. E, NW cor., B. C. Jordan Sur.....Drlg. 2,660 ft.
Nemours Corp.'s No. 6 Brumble, 3,900 ft. S, 1,946 ft. W, NE cor. E. F. Mitcheson Sur.....Began drlg. Nov. 20; cmtd. 10-in. 64 ft; 6-in. 2,295 ft.
Nemours Corp.'s No. 7 Brumble, 2,291 ft. S, 876 ft. W, NE cor. E. F. Mitcheson Sur.....Derrick.
Doris Thomason's No. 15 Crenshaw, 1,992 ft. S, 2,305 ft. E, SW cor., Jno. Womack Sur., in B. C. Jordan Sur.....Derrick.

**UNION COUNTY—SMACKOVER**

J. E. Crosbie et al's No. 1 G. L. Murpy, 300 ft. N, 300 ft. W, SE cor. SW NW, Sec. 13-16-16.....O.W.D.D; completed Nov. 8, 1930; pumping 100 bbls. 50% S.W., 2,740 ft; coring 2,835 ft.

**MISSISSIPPI**

**RANKIN COUNTY**

Feasel O. & G. Co.'s No. 1 Cox, SE cor. SE SE, Sec. 12-5-1e.....Derrick.
Gulf Ref. Co.'s No. 1 Hamilton, 1,320 ft. N, 1,320 ft. E, SW cor., Sec. 12-5-1e.....Small show oil 2,620 ft. and 2,660 ft; cored chalk 2,857 ft; reaming 3,025 ft; T.D. 3,049 ft.
Southern Pet. Co.'s No. 1 Ivey, SE, Sec. 12-5-1e.....Drlg. shale 1,358 ft.

## WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 58)

Moody-Seagraves Producing Co.'s and Independent Oil & Gas Co.'s No. 1 Welder, 6,280 ft. from S line, 8,150 ft. from E line of Welder tract, Henry Eyles Sur.....T. D. 4,000 ft.; drlg.
Coeden Oil Co.'s No. 1 Stoltzfus, 2,310 ft. S and E lines of Sec. 14, Rangley Subd. of C. Miller ranch, Uranga Sur.....T. D. 4,500 ft.; shut down.
Humble and Hurlbut et al's No. 1 J. C. Wood, 150 ft. from NW line, 1,144 ft. from SW line of P. T. Irrigation Co.....T. D. 5,077 ft.; standing.
Simms Oil Co.'s No. 2 Holzmark, 660 ft. N and 20* E of No. 1, T. York Sur.....T. D. 3,561 ft.: testing.
Rowan and Hope's No. 1 Goree, 600 ft. S, 300 ft. W, Lot 4, T. B. Barton Sur.....Derrick.

**BEXAR COUNTY**

Eckert & Son's No. 2 J. J. Brehm, 545 ft. from N line, 150 ft. from W line of lease, Sur. No. 48.....Location.
Gatlin Oil Co.'s No. 2 I. A. Beck, 150 ft. from SE line, 2,551 ft. from SW line of lease, J. Montes Sur.....Location.
Humble Oil & Ref. Co.'s No. 1 Ernest Lamm, near Elmendorf, southern part of county.....Moving in machinery.
Long and Craig's No. 1 Sandemer.....Location.
J. M. Russell's No. 1 F. L. Price, 1,500 ft. to N line, 660 ft. W of tract in Angel Navarro Sur.....T. D. 700 ft.; drlg.
Snyder, Reeves et al's No. 2 Glasscock, 12 miles NE of San Antonio.....T. D. 702 ft.; shut down.
Weibacher et al's No. 1 Ernst, 6,400 ft. S line, 900 ft. W line of J. Christopher Sur.....T. D. 720 ft.; shut down.
Penn Oil Co.'s No. 1 Kosub, 600 ft. N of NE cor. of Cooksey tract, then 700 ft. E on 175-ac. tract, J. Rinli Sur.....T. D. 1,822 ft.; drlg.
Somerset Syndicate's No. 1 Lagrange, 54 varas from S and W lines of Carrico tract, Sur. No. 48.....T. D. 275 ft.; shut down.
J. E. Westherall and Ben C. Hillman's No. 1 Talley.....Location.
Russell and Moore's No. 2 Mills, 20 ft. S of No. 1, Angel Navarro Sur.....T. D. 1,136 ft.; shut down; repairing rig.
S. M. Terrell et al's No. 1 A. Beadom, 1,100 ft. from E line, 12,000 ft. from N line of John Barber Sur.....Location.
F. W. Tong's No. 1 Willie Sandemer, 150 ft. from NE and SE lines of the N 20 acres of Willie Sandemer 400-ac. tract, Juan Montes Sur.....T. D. 700 ft.; ratholing.
Bowman and Waldrop's No. 1 Ridder, 1,000 ft. from S and W lines of 688-ac. tract, J. M. Sur.....T. D. 1,096 ft.; shut down.

**CALDWELL COUNTY**

L. H. Wentz' No. 1 W. D. Myrick, 150 ft. W of CEL of 118-ac. tract, B. Lockhart Sur.....Location.
Callihan et al's No. 3 W. H. Callihan, 70 ft. N, 65 deg. E of No. 2.....T. D. 2,525 ft.; shut down.
Callihan et al's No. 4 W. H. Callihan, 2,000 ft. from N line, 1,945 ft. from W line of tract, John R. Miller Sur.....T. D. 2,520 ft.; fishing.
W. D. Anderson's No. 1 Vickery, 150 ft. from N line, 450 ft. from W line of farm, Damon Sur.....T. D. 2,745 ft.; 50 ft. oil in hole.
Cargil et al's No. 1 Thomas, 1,505 ft. from E line, 150 ft. from NE cor. of A. W. Jordan tract, J. Alberts Sur.....T. D. 830 ft.; shut down.
Blount and Millr' No. 1 McMahan, 275 ft. from SW line, 75 ft. from SE line of 50-ac. tract, J. Pinchback Sur.....T. D. 2,127 ft.; drlg.

**COLORADO COUNTY**

Lewis Slagel Drilling Co.'s No. 1 Henderson, 990 ft. from W line, 2,310 ft. from S line, Sec. 1, Blk. 57, T.&P. Sur.....Location.

**COMAL COUNTY**

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur.....T. D. 600 ft.; standing.

**DEWITT COUNTY**

Penn Oil Co.'s No. 1 Junker, center N half 20-ac. tract, Pettus Sur.....T. D. 5,305 ft.; drlg.
H. T. Roe's No. 1 Leinhardt.....T. D. 2,170 ft.; shut down.
A. H. Gibson et al's No. 1 Von Roeder, 750 ft. N line, 200 ft. E line of farm, W. G. Hill League.....T. D. 3,860 ft.; drlg.
Sheldon Petroleum Co.'s No. 1 Goehring, center of Goehring tract, H. Stubblefield Sur.....Location.

**DUVAL COUNTY**

Al Buchanan et al's No. 1 Wood-Welder, 1,500 ft. from W line, 500 ft. from N line of Sec. 215.....Spudding.
S. R. C. Oil Co.'s No. 1 Duval County Land Co., Sur. 280.....Rigging up.

**EDWARDS COUNTY**

Phillips Pet. Corp.'s No. 2 A. G. Holman, 320 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25.....T. D. 6,640 ft.; drlg. plugs.
James Dalgish's No. 2 Peterson, 850 ft. N line, 1,100 ft. W line of Sec. 82, Blk. E in the H.E.&W.T. Sur...Location.
James Dalgish-Morrow's No. 1 Peterson, NW cor. Sec. 82, Blk. E, H.E.&W.T.R.R., NE cor. of county in the H.E.&W.T.R.R. Sur.....T. D. 4,980 ft.; drlg.

**FALLS COUNTY**

Marlin Oil Co.'s No. 1 Hodges.....T. D. 2,340 ft.; shut down.
Eddington et al's No. 1 Llewellyn, George Allen Sur., 4 miles SE Chilton.....T. D. 833 ft.; drlg.

**FAYETTE COUNTY**

Kelly et al's No. 1 Burke.....T. D. 834 ft.; shut down.

**FRIO COUNTY**

A. H. Wray's No. 1 Burns estate, 700 ft. N, 330 ft. E of C Sec. 123, Antone Hupzor.....T. D. 3,300 ft.; drlg.

**GOLIAD COUNTY**

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexeter Sur.....T. D. 2,330 ft.; shut down.
Gibson Oil Co.'s No. 1 Cyrus Parks, 3,000 ft. S and 2,500 ft. E of NW cor. of Parks ranch, Ferguson Sur.....T. D. 4,890 ft.; drlg.
T. B. Slick's No. 1 Poetler, 1,500 ft. from SW line, 900 ft. from SE line of 591-ac. tract, Obid Marshall Sur.....T. D. 3,840 ft.; drlg.

**GONZALES COUNTY**

Linden Petroleum Corp.'s No. 1 Hensley, 650 ft. from N line, 1,110 ft. from W line Hensley tract, J. Smith Sur.; reinstated.....T. D. 4,785 ft.; shut down.
Andibus & Cummings' No. 1 R. D. & J. C. Miller, 523 ft. from S line, 1,000 ft. from E line, Ann Williams Sur.....T. D. 2,550 ft.; shut down.
Acme Oil & Royalty Corp.'s No. 1 H. K. Weber, 2,525 ft. from NW line, 2,250 ft. from SW line, Wright Sur.....T. D. 2,560 ft.; shut down.
Weal Oil Co.'s No. 1 Martin, 360 ft. SE line and SW line of tract, Thomas Moore Sur.....Derrick.
United North & South Development Co.'s No. 1 Wells, 450 ft. each way out of NW cor. of Wells tract, Johnson league.....T. D. 4,773 ft.; coring.

**GUADALUPE COUNTY**

J. S. Suttle's No. 2 A. Baenzinger, 40 ft. E line, 150 ft. S line of tract in the A. O. Mansola Sur., 5½ miles S from Seguin.....T. D. 2,031 ft.; drlg.
Ray Oil Co.'s No. 1 R. Felsing, 300 ft. NW line, 450 ft. NE line 120-ac. tract in the M. Baker Sur.....T. D. 900 ft.; shut down.
J. S. Suttle's No. 1 Wurzbach, 3,750 ft. from NW line, 2,450 ft. from NE line of Young Setton Sur.....T. D. 1,955 ft.; coring.
O. K. Emerson's No. 1 C. A. Phillips, center of 80-ac. tract, Velda Sur.....Rigging up.
Jones and Erwin's No. 1 O. Forrester, 2,700 ft. from NE cor., 450 ft. from NW line, O. Forrester tract, Pate Sur.....T. D. 707 ft.; shut down.
Jones and Erwin's No. 1 Hoese, 150 ft. each way out of NE cor. of 200-ac. tract, J. Leal Sur.....T. D. 570 ft.; set 6⅝-in. csg.

**HAYS COUNTY**

Hailey & Whittington's No. 1 Heidenrich, 4,900 ft. from NW line, 400 ft. from NE line of farm, Hemphill Sur.....T. D. 1,400 ft.; drlg.
San Marcos Oil & Gas Co.'s No. 1 A. H. Alford.....T. D. 513 ft.; waiting on cement.

**JIM HOGG COUNTY**

Cole Petroleum Co.'s No. 1 Allen, 150 ft. from W line, 336 ft. from N line, Blk. 7, Sur. No. 23.....T. D. 2,275 ft.; shut down.
E. E. Watts' No. 1 Gomez, 4,200 ft. to N line, 1,400 ft. to E line of Sur. 125.....T. D. 1,105 ft.; waiting on cement.
J. D. Pulliam's No. 1 Jones, 1,020 ft. W line, 1,020 ft. S line, Share 5-A Hinojosa Sur.....T. D. 2,300 ft.; drlg.
P. H. Wilson's No. 1 Edds, Sur. No 210.....Rigging up.

**JIM WELLS COUNTY**

J. Walsh et al's No. 1 W. D. Wade, 1,035 ft. NE line, 300 ft. NW line of N cor., Lot 1, Blk. C, W. H. Bode Sur.....T. D. 2,920 ft.; 20,000,000 ft. gas; shut in.
Prairie Lea Prod. Co.'s No. 1 Oppenheimer.....Spudded and shut down.

**KARNES COUNTY**

J. F. Morrissey et al's No. 1 Rigsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCouil Sur.....T. D. 2,000 ft.; standing.
J. F. Morrison's No. 1 Cockran, 150 ft. from S line, 500 ft. from E line of tract, D. B. McConnell Sur.....Location.
Hurlbut et al's No. 1 Newberry, 450 ft. SE and SW line of Newberry 428-ac. tract, Carlos Martinez Sur.....T. D. 2,975 ft.; show gas.

**KENDALL COUNTY**

Borgett et al's No. 1 Haag, W. Avery Sur.....T. D. 1,110 ft.; standing.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia.....T. D. 900 ft.; standing.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale.....T. D. 2,340 ft.; drlg.
P. B. Sterling's No. 1 R. J. McCrocklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia.....T. D. 1,600 ft.; shut down.
R. M. Perkins' No. 1 J. Lawhorn, Sec. 10, 2,475 ft. E line, 1,488 ft. S line.....T. D. 705 ft.; drlg.
Permian Oil Co.'s No. 1 Boles, S.A.&M.G. Ry. Sur. No. 542½.....T. D. 1,710 ft.; drlg.
Hasty Sitton's No. 1 McMillan, south central part of 180-ac. lease, B. Williams Sur.....Location.
Abercrombie Oil Co. and Harrison Oil Co.'s No. 1 Kunz, 900 ft. from E line, 1,900 ft. from S line of McCormack Sur.....T. D. 2,250 ft.; dry and abnd.

**KERR COUNTY**

Evans et al's No. 1 Love Ranch, 100 ft. from S line Sur. 1,597, 1,000 ft. E of W line of J. Martinez No. 1,594 Sur.....T. D. 3,374 ft.; moving in new equipment, sand 3,347-74 ft.; oil and gas.

**KINNEY COUNTY**

Magnolia Pet. Co.'s No. 1 Whitehead-Wardlaw, 2,640 ft. W line and S line of Melton Valdez grant .....T. D. 4,365 ft.; drlg.
Mardon Oil Co.'s No. 2 Jim Clamp .....T. D. 1,389 ft.; standing.

**KIMBLE COUNTY**

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. .....T. D. 850 ft.; standing.
Kamon et al's No. 1 Hodges .....T. D. 810 ft.; drlg.

**LASALLE COUNTY**

Fred W. Valz' No. 1 Coleman, 200 ft. from S and E lines of SW Sec. 514, B.S.&F. Sur. .....T. D. 40 ft.; standing.

**LAVACA COUNTY**

Newton Oil Co.'s No. 1 Reeves, cor. of S line of Reeves tract, John Huesser Sur. .....T. D. 3,175 ft.; show gas.

**LIVE OAK COUNTY**

Jacob, Buzzini & Pickett, Inc.'s No. 1 C. E. Kay, in the Bridget Fadden Sur., 3 miles E from George West....T. D. 915 ft.; shut down.
Penn Oil Co.'s No. 2 Lyne Bros., 1½ miles SW of No. 1..T. D. 2,500 ft.; shut down.
Houston Oil Co.'s No. 3 Dunning, 330 ft. from NE line and 2,800 ft. from SE line of tract, M. B. Kilvin Sur..Moving in derrick.
Houston Oil Co.'s No. 1 D. W. Snyder, 630 ft. from S line, 150 ft. from E line of Snyder tract, T. E. Garner Sur. .....T. D. 4,500 ft.; drlg.
Illinois Exploration Synd.'s No. 1 Reeves-Brown, 1,300 ft. S of Sellers tract, 1,800 ft. E of Ry. .....T. D. 401 ft.; drlg.
Sid Keoughan's No. 1 C. E. Terrell, 6,000 ft. from N line, 1,000 ft. from E line, Dan O'Boyle Sur. .....T. D. 2,840 ft.; shut down.
Tul-Tex Oil Co.'s No. 1 L. Jacobs, 4 miles from N of Callihan Field .....T. D. 3,200 ft.; drlg.

**LEE COUNTY**

Burt et al's (M. D. Rickett) No. 1 R. C. Sanders .....T. D. 3,124 ft.; shut down.
Marts and others' No. 1 Thomas .....T. D. 1,740 ft.; drlg.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. .....T. D. 1,987 ft.; will drill deeper.

**McLENNAN COUNTY**

C. E. Groone and others' No. 1 League .....T. D. 932 ft.; shut down.
W. L. Murrel and others' No. 1 Hixon .....T. D. 775 ft.; shut down.

**McMULLEN COUNTY**

Mogul Pet. Co.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. .....T. D. 632 ft.; standing.
Sheree, Brodie and Emick's No. 1 Shiner, Henry Brewer Sur. .....T. D. 500 ft.; drlg.; show gas 274-79 ft.

**MAVERICK COUNTY**

Rycade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 7, L&G.N. Sur. .....T. D. 3,620 ft.; underreaming.
Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the L&G.N. Sur. .....T. D. 7,200 ft.; drlg.
Texas Gas Utilities Co.'s No. 7 Chittim, 5.70° E, 1,845 ft. from No. 3, L&G.N. Sur. .....Location.

**MEDINA COUNTY**

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay .....T. D. 1,660 ft.; coring.
Caldwell et al's No. 1 L. W. Burrell .....T. D. 518 ft.; standing.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of survey, 487.6 miles W of Devine .....T. D. 2,789 ft.; shut down.
United North & South Dev. Co.'s No. 1 Little, S from D'Hanis and near S line of county .....T. D. 4,242 ft.; whipstocking.

**MILAM COUNTY**

W. H. Birdwell and others' No. 1 C. H. Coffield, 150 ft. from N line, 150 ft. from W line of 190-ac. farm, I. J. Chambers Sur. .....T. D. 1,582 ft.; dry and abnd.
Chapman and Kemp's No. 1 Cone, Jose Leal Sur. .....T. D. 1,400 ft.; dry and abnd.
Rheubotham & Tate's No. 1 Johnson, 325 ft. from N line, 250 ft. from W line of 40-ac. tract, D. Robinson Sur. .....T. D. 1,475 ft.; shut down.
Kyser, Roberts & Dibble's No. 2 Ward .....T. D. 1,600 ft.; shut down.
Lloyd Oil Corp. and H. W. Elliott's No. 1 Davis .....T. D. 1,300 ft.; standing.
J. E. McKee et al's No. 1 Littleton, 150 ft. from N and 225 ft. from W lines of lease, C. Chevallier Sur. ....Derrick.
G. I. Moore's No. 1 Davis .....T. D. 1,765 ft.; drlg.
Peggie Bros.' No. 1 M. Reed .....T. D. 650 ft.; shut down.
Service Oil & Gas Co.'s No. 1 H. G. Hensley, 500 ft. from NW line, 400 ft. from NE line of 50-ac. tract, Valdez Sur. .....T. D. 2,180 ft.; standing.

**NUECES COUNTY**

Grimm and others' No. 1 Wm. Baur .....Location.
Hale & Hall's No. 1 Koenisch .....Rigging up rotary.
Houston Oil Co.'s No. 1 Comstock, 105 ft. N of C of tract..T. D. 4,913 ft.; running csg.
Houston Oil Co.'s No. 1 Joe Hunter, 607 ft. from W line, 165 ft. from S line, 75-ac. tract, Sec. 591 .....Location.
Bowen et al's No. 1 Theo Prieur .....Spudded and shut down.
Pearson Properties, Inc.'s No. 1 State National Bank ....T. D. 4,811 ft.; coring.
Calallen Oil & Gas Co.'s No. 2 Allen, 800 ft. from E line, 1,100 ft. from S line, Blk. 76, Garias Sur. .....T. D. 1,887 ft.; shut down.
H. H. Weinert's No. 1 Mohle, 450 ft. from S line, 450 ft. from W line, Sec. 94, Bishop Subd., Palo Alto lands .....T. D. 452 ft.; set casing.

**REAL COUNTY**

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 .....T. D. 400 ft.; drlg.

**STARR COUNTY**

Los Olmos Oil Co.'s No. 2 Kelsey-Bass, Blk. 6, Porcion 77 .....T. D. 75 ft.; drlg.

**SAN PATRICIO COUNTY**

George B. Pickett's No. 1 Baldwin, 900 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neill Sur., Abstract 211 .....T. D. 4,020 ft.; shut down.
Cosden Oil Co.'s No. 1 Ramsey, 3,000 ft. from N line, 4,500 ft. from E line, Portillo Sur. .....T. D. 2,601 ft.; shut down.
Union Prod. Co.'s No. 4 Welder, 3,000 ft. N line, 4,500 ft. E line of tract in the E. Portillo Sur. .....T. D. 5,893 ft.; standing.
C. B. Peterman et al's No. 1 Foster, 150 ft. from E line, 1,420 ft. from N line of Blk. 5 of the Welder-Coleman-Fulton Subd., 3½ miles W from Sinton .....Location.
Cosden Oil Co.'s No. 1 Powell, 330 ft. E line of 36-ac. tract in Sec. 32, Paul Subd., Coleman-Fulton Pasture Lands .....T. D. 4,532 ft.; standing.

**TRAVIS COUNTY**

Fort Bend Oil Co.'s No. 1 Engleman, 450 ft. N line, 150 ft. W line of 108-ac. tract, J. H. Denson Sur. ....T. D. 385 ft.; shut down; depth corrected.
Sun Oil Co.'s No. 1 Nagle .....T. D. 892 ft.; drill stem stuck.
Allen et al's No. 1 Sophie Smith .....Building derrick.

**UVALDE COUNTY**

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 .....T. D. 2,710 ft.; shut down.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde .....T. D. 1,610 ft.; shut down.

**VICTORIA COUNTY**

Newton and others' No. 1 West .....T. D. 1,550 ft.; standing.
The Texas Co.'s No. 1 A. M. McFadden, 1,550 ft. N and E lines of H. Bonny Sur. .....T. D. 6,201 ft.; drlg. sand.

**WEBB COUNTY**

Usher Carson et al's No. 3 Benavides, 150 ft. from S and W lines of Blk. 7, Sur. 1,613 .....Spudded.
O. W. Killam's No. 1 Bruni, 2,490 ft. from E line, 1,170 ft. from S line of Sur. No. 77 .....T. D. 300 ft.; drlg.

**WILSON COUNTY**

Rycade Oil Corp. and Getty Petroleum Co.'s No. 1 J. A. Johnson, 150 ft. from N line, 600 ft. E of railroad tract, Jose de Balmaseda Sur. .....Rigging up.
Stover and Wren's No. 1 John Reuss, 10,400 ft. from SW line, 2,300 ft. from NW line, O. A. Trevino Sur. No. 19 .....T. D. 45 ft.; standing.

**ZAPATA COUNTY**

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. .....Rigging up.
John Poppas Pool, Inc.'s No. 1 Flores, 2,977 ft. SE line, 6,000 ft. Rio Grande River, Porcion 35 .....Rigged up.
B. F. Nixon's No. 1 A. Guiterrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 8, Partition 10, Borrego grant ....T. D. 50 ft.; standing.
O. W. Killam's No. 2 Slator, Borrego grant .....Derrick.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 .....T. D. 1,780 ft.; drlg.
William Marks' No. 1 Flores, Blk. 36, Porcion 37 .....T. D. 300 ft.; drlg.
National Oil Co. of Delaware's No. 1 Luther, 617 ft. NW line, 96 ft. NE line, Blk. 97, Da Prom Subd., Porcion 6 .....T. D. 380 ft.; standing.
Mackenzie and Tallmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 .....T. D. 300 ft.; drlg.
F. M. Blair & Son's No. 1 Guiterrez, 150 ft. from NW line, 660 ft. from SW line, Blk. 2, Blair Subd., Comitas grant .....T. D. 1,750 ft.; standing.
Lincoln Oil & Gas Co.'s No. 1 Guiterrez, Blk. 23, Subd., La Huerta grant .....T. D. 1,150 ft.; drlg.
J. J. O'Hern's No. 1 S. Benavides, 150 ft. from NW line, 150 ft. from NE line, Blk. 10, Fansler Subd., Villa grant .....T. D. 1,550 ft.; tested dry sand 1,540-50 ft.

**ZAVALA COUNTY**

Ed Anglin's No. 6 La Pryor .....Location.
Carl Cromwell's No. 1 Whitecotton, C of NW Sec. 1, A.P.&M. Sur. .....Location.
Ed Anglin's No. 1 Matthews, 118 varas from S and W lines of Sec. 4, Blk. 2, L&G.N. Sur. .....T. D. 1,155 ft.; plugged back to 780 ft.; completed for 250,000-ft. gasser.
F. W. Weigand's No. 1 Gates, 1,320 ft. from N line, 220 ft. from NE cor., Sur. No. 13 .....T. D. 3,215 ft.; shut down.

## SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 58)

Magnolia Petroleum Co.'s No. 7 Rand Miller .....Location.
The Texas Company's No. 9-A Knoblock, 450 ft. from NE line, 600 ft. from SE line of lease, Robinson Sur. .....Location.
The Texas Company's No. 4 Pauline Roamel, 850 ft. from SE line, 450 ft. from SW line of lease, Hodges Sur. .....T. D. 2,549 ft.; completed flowing 225 bbls.
The Texas Company's No. 1 Appling, 180 ft. from S line, 450 ft. E of NE cor. of Alexander Sur. in the Hodges Sur. .....T. D. 2,597 ft.; drlg.
Trinity Drillers No. 2-B Penn-Miller, 150 ft. out of SW cor of lease .....T. D. 2,540 ft.; drlg.
F. L. Thomson's No. 2 Posey, 25 ft. from NW line, 300 ft. from No. 1 .....Location.

**CHAPMAN POOL—WILLIAMSON COUNTY**

W. D. Anderson's No. 6-A T. P. Simmons .....Rig up and shut down.
W. D. Anderson's No. 8 M. V. Lawrence .....Location.
Birdwell et al's No. 1 Simmons, H. Owens Sur. .....T. D. 300 ft.; drlg.
Bartlett & Wilson's No. 2 R. E. Stewart .....T. D. 790 ft.; standing.
Bartlett & Wilson's No. 1 R. E. Stewart .....T. D. 741 ft.; standing.
Chapman et al's No. "D" 1 Abbott .....Location.
Chapman et al's No. "D" 2 Abbott .....Location.
Chapman et al's No. "D" 5 Abbott .....Location.
Chapman et al's No. "D" 6 Abbott .....T. D. 1,930 ft.; bailing.
Chapman et al's No. D-7 J. C. Abbott .....T. D. 200 ft.; shut down.
Chapman et al's No. "D" 10 Abbott .....Location.
Collins et al's No. 6 Lawrence .....Location.
J. L. Collins & Co.'s No. 7 M. V. Lawrence, 150 ft. from E line, 215 ft. from S line of 27-ac. tract in the S Miller Sur. .....Csg. setting; shut down for water.
Ertell et al's No. 6 J. C. Abbott .....T. D. 1,730 ft.; shut down.
E. E. Ertell's No. 7 J. C. Abbott .....T. D. 100 ft.; standing.
Horn & Stratton's No. 9 J. C. Abbott, W side of lease, 150 ft. from S line in the S. Miller Sur. .....T. D. 2,000 ft.; completed for 25 bbls.
E. L. Chapman et al's No. 2-A Sides .....Rigging up.
J. L. Collins & Co.'s No. 5 M. V. Lawrence, 150 ft. from W line, 515 ft. from S line of 27-ac. tract, S. Miller Sur. .....T. D. 1,462 ft.; standing.
McNeal et al's No. 7 Kilgore .....T. D. 1,864 ft.; reaming.
E. C. Mead's No. 1 Abbott, 100 ft. from N and W lines of 6-ac. tract, S. Miller Sur. .....T. D. 2,166 ft.; shut down.
Sequoia Oil Co.'s No. 7 T. P. Simmons .....Location.
G. Stratton's No. 5 J. C. Abbott, 450 ft. from E line, 150 ft. from S line of 32-ac. tract, S. Miller Sur. ....T. D. 1,730 ft.; set csg.
Trapshooter Reilly's No. 3 M. V. Lawrence, Simon Miller Sur. .....T. D. 1,910 ft.; flowing by heads.

**PETTUS AREA—BEE COUNTY**

Batex Petroleum Co.'s No. 3 Burnett, 360 ft. from N line, 600 ft. from E line of 320-ac. tract, Kerr. Sur. .....Location.
J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur. .....T. D. 3,734 ft.; shut down for fuel.
Moody-Scagraves Producing Co.'s No. 2 McKinney, 3,340 ft. from E line, 450 ft. from S line, McKinney tract, R. C. Ballard Sur. .....Location abandoned.
The Texas Company's No. 2 J. R. Scott, 200 ft. from N line, 150 ft. from W line, J. M. Urango Sur. .....T. D. 690 ft.; shut down; core test will not be further reported.
The Texas Company's No. 3 J. R. Scott, 7,100 ft. from No. 1, SW .....Location; core test will not be further reported.
Union Producing Co.'s No. 13 Ray, George Habbermacher Sur. .....Rigging up.
Union Producing Co.'s No. 26 Ray, 3,500 ft. from S line, 4,000 ft. from E line, P. Miller Sur. .....Location.

**AGUA DULCE FIELD—NUECES COUNTY**

South Texas Production Co.'s No. 3 Walter, 800 ft. from S line, 460 ft. from E line of Walters tract in Section 34 .....T. D. 1,984 ft.; standing.

**SAXET FIELD—NUECES COUNTY**

Saxet Oil & Gas Co.'s No. 2 Donnegan, 2,150 ft. due S of No. 1 Donnegan .....T. D. 6,459 ft.; coring.
Saxet Oil & Gas Co.'s No. 7 Dunn, 2,400 ft. NW and 200 ft. NE of S cor. of Dunn farm .....Derrick.
Moody-Seagraves Producing Co.'s No. 1 Smith, 450 ft. from N and E line of 120-ac. tract, J. Dunn Sur. ...T. D. 3,611 ft. in salt water sand.
Pearson Properties, Inc.'s No. 1 State National Bank ....T. D. 4,811 ft.; coring.

**LION McFADDEN POOL—VICTORIA COUNTY**

Lion Oil Refining Co.'s No. 2 McFadden, 1,917 ft. W of NE cor. and 512 ft. at right angles from N line of Edwards Sur., 660 ft. E of No. 1 in the M. J. Travesia Sur. .....T. D. 6,425 ft.; preparing to shoot drill stem.

**LAREDO DISTRICT**
**SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY**

Magnolia Petroleum Co.'s No. 1 Edge-Hahl, 150 ft. from N line, 150 ft. from W line, Sur. .....T. D. 4,282 ft.; drlg.
F. M. Frasher and R. F. Schoolfield's No. 1 Duval Land Co., 990 ft. from N line, 1,320 ft. from W line, Sur. 123 .....T. D. 2,308 ft.; comp. for 500 bbls.

**RANDADO POOL—JIM HOGG COUNTY**

J. W. Pippin's No. 1 Hinnant, 150 ft. each way from SW cor., Blk. 11, Sur. 147 .....Derrick.

**KOHLER POOL—DUVAL COUNTY**

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164 .....T. D. 1,891 ft.; drlg.

**S. R. C. POOL—DUVAL COUNTY**

The Texas Company's No. 1 Duval Ranch, 2,490 ft. S line, 150 ft. W line of Sur. 297 ..... T. D. 1,760 ft.; drlg.; tested salt water 1,747-54 ft.

**COLE POOL—DUVAL COUNTY**

Magnolia Petroleum Co.'s No. 4 Benavides, 150 ft. from NE line, 450 ft. from NW line, Blk. 28, Sur. 174 .... T. D. 2,645 ft.; drlg.

Wilkins Seacord's No. 2 Mulholland, 218 ft. from N line, 1,050 ft. from W line of Sur. 173 ..... T. D. 2,980 ft.; drlg.

**ROMA POOL—STARR COUNTY**

The Texas Company's No. 5-A V. C. de Guerra, 675 ft. from N line, 675 ft. from E line, Share 305, Por. 67, Jurisdiction of Mier ..... T. D. 3,770 ft.; drlg.

**MID-OJUELOS—WEBB COUNTY**

O. W. Killam's No. 2 Garcia, 605 ft. S line, 150 ft. E line, Blk. 43, Los Ojuelos grant ..... T. D. 1,850 ft.; completed for 30,000,000-foot gasser.

O. W. Killam's No. 3 Garcia, 586 ft. S line, 164 ft. E line, Blk. 44, Los Ojuelos grant ..... T. D. 820 ft.; drlg.

**CAROLINA-TEXAS POOL—WEBB COUNTY**

George S. Marshall's No. 1 C. W. Webster, 810 ft. from S line, 150 ft. from W line, Sur. 684 ..... T. D. 2,700 ft.; drlg.

**CHARCO REDONDO POOL—ZAPATA COUNTY**

C. R. Moore and J. W. Moore's No. 1 Adela G. de Flores, 330 ft. from NW line, 330 ft. from NE line, Doty Subd. ..... T. D. 2,000 ft.; standing.

C. R. Moore and J. W. Moore's No. 2 Adela G. de Flores, 150 ft. from NE line, 150 ft. from SE line, Doty Subd. ..... T. D. 100 ft.; standing.

**JENNINGS-MARTINEZ-ZAPATA**

South Texas Production Co.'s No. 1 Gutierrez, 2,000 ft. from E line, 660 ft. from NW line of Survey 162 ..... T. D. 1,733 ft.; comp. 30,000,000 ft. gas.

**JENNINGS-MUCKELROY POOL—ZAPATA COUNTY**

Allied Oil & Gas Co.'s No. 13 Guiterrez, 750 ft. from NE line, 3,663 ft. from SE line, Share 4, Fansler Partition, Comitas grant ..... T. D. 100 ft.; standing.

Allied Oil & Gas Co.'s No. 1 D. Bustamente, 361 ft. from NW line, 150 ft. from NE line, Blk. 13, Share 10, Fansler Partition, Comitas grant ..... T. D. 1,300 ft.; drlg.

J. K. Gibbie's No. 1 Trevino, 150 ft. from NE line, 150 ft. from SE line of Blk. 3, Sur. 65 ..... Derrick.

Nordan and Morris and Grimm and Yakey's No. 1 S. Bustamente, 990 ft. from NE line, 150 ft. from NW line, Share 34, Fansler Partition, Comitas grant .. Derrick.

Pal-Mar Oil Co.'s No. 1 M. Garza, 555 ft. NE line, 150 ft. NW line of Douglas Subd., M. Garza Lands Comitas grant ..... Spudded.

W. R. Shankle's No. 6 Guiterrez, 1,800 ft. from NE line, 2,989 ft. from NW line, Share 4, Fansler Partition, Comitas grant ..... T. D. 1,280 ft.; comp. for 30 bbls.

W. R. Shankle's No. 7 Guiterrez, 2,100 ft. from NE line, 2,898 ft. from NW line, Share 4, Fansler Partition, Comitas grant ..... Location.

S. R. C. Oil Co.'s No. 1 Cuellar, 150 ft. S and W lines, Block 16, Sur. 62 ..... Location.

S. R. C. Oil Co.'s No. 1 F. Cuellar, 300 ft. from S line, 300 ft. from W line, Blk. 6, Sur. 285 ..... T. D. 645 ft.; drlg.

S. R. C. Oil Co.'s No. 2 F. Cuellar, 300 ft. from S line, 300 ft. from E line, Blk. 8, Sur. 19 ..... Location.

S. R. C. Oil Co.'s No. 10-A Cuellar, 150 ft. from NW line, 150 ft. from SW line, Blk. 10, Sur. 65 ..... Spudded.

S. R. C. Oil Co.'s No. 9-B Cuellar, 660 ft. from SW line, 150 ft. from SE line, Blk. 7, Sur. 65 ..... T. D. 200 ft.; drlg.

S. R. C. Oil Co.'s No. 3-D Montemayor, 365 ft. S line, 150 ft. W line, Blk. 8, Sur. 64 ..... T. D. 1,313 ft.; comp. for 40 bbls.

S. R. C. Oil Co.'s No. 3-C (12-B) Trevino ..... Location.

Whicker, Arnold & Ahler's No. 3 Garza, 150 ft. from SW line, 450 ft. from SE line, Blk. 1, Zerro Ranch Subd., Comitas grant ..... Rigging up.

J. H. Winch's No. 2 A. Bustamente, 450 ft. from NW line, 150 ft. from NE line, Blk. 7, Share 5, Fansler Partition, Comitas grant ..... T. D. 1,257 ft.; shut down for storage.

**JENNINGS-CUELLAR POOL—ZAPATA COUNTY**

O. W. Killam's No. 1 Slator, Blk. 1, Slator Pasture, Borrego grant ..... Spudded.

O. W. Killam's No. 34 "B," Sur. 277 ..... T. D. 1,410 ft.; drlg.

O. W. Killam's No. 35 "C," Sur. 278 ..... T. D. 650 ft.; drlg.

**MIRANDO VALLEY POOL—ZAPATA COUNTY**

O. W. Killam's No. 1 Lopez, 181 ft. from W line, 150 ft. from S line, Blk. 16, Sur. 251 ..... T. D. 2,420 ft.; dry and abnd.

O. W. Killam's No. 1 Killam, 875 ft. NE line, 2,080 ft. SE line of Sur. No. 16 ..... Derrick.

## EASTERN FIELDS

(Continued from Page 60)

district to a depth of 3,125 feet and it is a fair gas well. On its own property in the same district, the Winifrede Co. drilled No. 4 to 2,283 feet and it is showing for about 120,000 feet of gas while cleaning out. In Mannington district, Marion County, Sutton Brothers drilled No. 2 on the L. S. Thomas farm deeper to 2,997 feet and have a fair gas well. On the Muller heirs farm down through the Keener sand the Hesly Brothers completed their second well and found no showing. This is in Spring Creek district, Wirt County.

In Smithfield district, Roane County, the Union Gas Corp. completed its test on the Eliza Nichols farm in the Injun sand and it is a light gas well, showing for about 40,000 feet. On the waters of Little Cove Creek the Middleton Natural Gas Co. completed a second well on the Perry Woofter, Troy district, Gilmer County, through the Injun sand at 2,208 feet and it is dry.

In Sherman district, Boone County, the Pure Oil Co. completed No. 39 on the Lafallotte, Robson and Prichard tract B and it will make a small pumper. a test on the Nancy A. Stewart farm in the Berea sand and it had a very light showing of oil and gas and will likely be pulled. In Medina County, the Oko Oil & Gas Co. completed No. 45, Henry Essig farm, Lot 2, Section 13, Chatham Township, at 375 feet and it was a dry hole. On Lot 21, Section 16, of the same township, Curtis and Eaken drilled No. 4 on the Harriet Broadsword farm to a depth of 375 feet and with a similar result.

In Muskingum County the Pure Oil Co. completed No. 3 on the J. H. Harkness farm, SW of Section 7, Hopewell Township, in the Clinton sand but after shot the well swabbed 8 bbls. and may not be put to pumping. In the shallow sand district in Washington County, the Morningstar Oil & Gas Co. completed No. 2 on the C. Gearhart farm, near Whipple, Lot 51, Salem Township. It reached the Buell Run sand at 494 feet and made 1 bbl. the first day after shot.

### Drilling in Ohio

In Noble County the Ohio Fuel Gas Co. has rigged up on the W. W. McClintock farm in Marion Township. C. W. Rich and others are down to 400 feet on the J. K. and William McLaughlin farm, Section 18, Seneca Township. In Enoch Township, Marion Harper and others have reached 560 feet on the Marion Harper farm, Section 32, and Way Wickens and others have a rig standing for a second test on the J. M. Rolands farm. In Jackson Township, Frank Worral and others are down to 500 feet on the J. B. Hutchinson farm, Section 12. George E. Jewell and others have reached 550 feet in No. 6 on the Moses L. Ginn farm, Section 7, Noble Township, and in Aurelius Township, Donal E. Williams and others are drilling at 338 feet in No. 7 on the Nena Hutchins farm, Section 7.

In Washington County, mostly in shallow sand drilling. John T. Cleary and others are down to 100 feet in a second test on the Jacob Morningstar farm, Fearing Township, Section 134. In Palmer Township, H. F. McTaggart and others have a rig standing on the Charles Fisher farm, Section 7. In Wesly Township, F. M. Russel and others are down to 460 feet in No. 32 on the Alexander Martin farm, Lot 11. Herlan Schramm and others have No. 17 drilling on the Ephram Cummons farm, Independence Township, Section 33, and it is close to the Keener sand. In the same township, John C. Grau and others have rigged up for No. 7 on the Henry Sternhoff farm. In Newport Township the Zwingle Brothers are drilling at 800 feet on the Michel Edwards farm.

In Medina County there are three deep wells drilling, a test of the Ohio Fuel Gas Co. at 3,000 feet on the W. M. Barnhart farm, Harrisville Township, Section 20, and in Lot 6, same township, Barnhart and others are down to 1,950 feet in No. 3 on the Joseph Funk farm, and Meyers Brothers and others are at 2,830 feet in their No. 8 G. P. Mong, Lot 56.

### WEST VIRGINIA

There was one other oil completion in West Virginia, the South Penn Oil Co.'s No. 14 on the C. S. McCarty farm in Ravenswood district, Jackson County, showing for 12 bbls. from the Berea sand. This farm so far has been very productive.

### Gas Wells

In Boone County the Pure Oil Co. completed No. 49 on the Federal Coal Co. tract in Sherman district in the Berea sand at 2,819 feet and it is a small gasser. In Washington district, C. P. Jones & Co. drilled a test on the H. H. Hill farm to a depth of 1,783 feet and it had no showing.

In Calhoun County, W. H. Bickel completed a very fair gas well in his No. 4 on the J. H. and S. C. Hayhurst farm in Center district, which went to the Injun sand at 2,015 feet. In Lee district, F. F. McIntosh completed No. 3 on the C. C. Starcher farm in the Injun sand at 1,942 feet, showing for a light gas well. On the Blue Creek Coal Land Co.'s tract in Union district, Clay County, G. L. Cabot completed his No. 1 test at a depth of 2,428 feet and while being cleaned out is rated as a light gas well.

In Fayette County, Godfrey L. Cabot completed two wells, both in Falls district. No. 5 on the Kanawha & Hockins Coal & Coke Co. property is a light gas well at 2,436 feet and No. 2 on the W. C. Newman farm is a dry hole at a depth of 2,921 feet. In Gilmer County the Carnegie Natural Gas Co. completed No. 2 on the E. B. Baker farm, Center district, which was drilled in the Injun sand at 1,817 feet and, with the Salt sand, is a small gas well.

### Kanawha County

In Kanawha County, Godfrey L. Cabot completed his No. 37 on the Huntington Development Co.'s tract in Cabin Creek In the same district, G. L. Cabot completed his No. 43 on the Federal Coal Co. land in the Berea and it is showing for 238,000 feet of gas. In Washington district, the Pond Fork Oil & Gas Co. drilled No. 2 on the Yawkey Freeman Coal Co. property and has a gas well of about 120,000 feet.

### Drilling in West Virginia

In Proctor district, Wetzel County, the Grass Lick Oil & Gas Co. has a rig completed on the J. T. Lemasters farm. In Marshall County the Manufacturers Light & Heat Co. is building a rig on the William and A. Archer farm in Cameron district, and in the same district has shut down No. 3,448 on the W. B. Hicks farm at 1,185 feet. In Liberty district this company has spudded in No. 3,457 on the J. M. Rine and others' farm and is drilling at 250 feet, and has a rig standing for a test on the W. H. Loper and others farm, and is hauling in tools for No. 3,461 on the Marshall County Bank property. In Cameron district, Frye and McCracken have rigged up and are ready to start drilling on the Harvey Knight farm.

In Ritchie County the Continental Oil Co. has made a location for a second test on the N. T. Mason farm in Grant district, and in the same district J. F. Deem and others have a rig standing on the W. W. Lawrence farm. Norris and others have reached 1,175 feet on the Isaac Weekley farm in Grant district. In Murphy district, Godfrey L. Cabot is down to 800 feet on the J. W. Grimm farm, and has made a location on the J. E. Eddy farm. In the same district C. B. Lewis and others have a rig standing on the W. P. Baker farm, and Huffman and others is down to 830 feet on the Emery Wilson farm. In Grant district, again, W. H. Bickel has reached 1,200 feet on the Carl Scott farm, and C. H. McClure is down to 1,250 feet on the Israel Weekley farm. In the same district the Continental Oil Co. has a rig standing on the Margaret Mason farm. In Murphy district, Harrison and Ritchie have rigged up on the Joseph Tingler farm, and J. F. Deem and others are ready with a rig for No. 1 on the Elias Haught farm. Joseph Haught and others is rigging up for a second test on the Joseph Haught farm in Murphy district.

### Calhoun County

In Calhoun County, George W. Hamilton and others have a rig standing on the Ella Eisman farm in Washington district. In the same district Godfrey L. Cabot is down to 3,100 feet on the George Hunt farm, and has a rig standing on the G. B. May farm. McCall & Co. are drilling on the D. E. Bailey farm, same district, at 2,000 feet. In Sherman district, W. H. Bickel has rigged up on the Louis Bennett farm. In Lee district, McCall & Co. are down to 1,920 feet on the Frank Wallbrown farm. The Rocksdale Oil & Gas Co. has spudded in and started drilling on the Thomas Slider farm, Lee district, and in the same district the United Fuel Gas Co. has had to shut down on the Carr Shaffer farm for lack of water, after reaching 600 feet. Creed Barker is drilling on the J. L. Stump farm, Center district, at 1,300 feet. W. H. Bickel is down for water at 780 feet on the John D. Collins farm, Center district, and has rigged up for No. 3 on the same farm, and has cleared a location for No. 4. On the Emma Ryan farm, Center district, the Hope Natural Gas Co. has reached 810 feet. In the same district, F. F. McIntosh has rigged up on the Clinton Shock farm. In Sheridan district, A. Rothwell is drilling at 2.150 feet on the T. C. Cain farm, and Park Bowser has spudded in on the Rebecca Wilson farm and started drilling. In the same district, Godfrey L. Cabot has reached 1,740 feet in a second test on the W. J. Skinner farm.

In Smithfield district, Roane County, the United Fuel Gas has reached 3,625 feet in No. 1,645 on the Presley Vineyard farm, which is being drilled deeper. The well is still drilling, and the same company made 400 feet in the past week in its test on the H. C. Simmons farm, which is now at 1,500 feet. In Boone County the United Fuel Gas Co. has four wells drilling in Scott district, No. 4,272 on the Horse Creek Land & Mining Co. property, No. 4,273 on the Courtney & Co. tract at 1,650 feet, No. 4,274 on the same property at 1,780 feet, and No. 4,199 on the Elizabeth Smott farm at 2,290 feet which is in the sand. In Sherman district the Pure Oil Co. has a rig up for No. 50 on the Federal Coal Co. tract, and is drilling No. 47 at 2,263 feet, and has made a location for No. 42 on the Lafollette, Robson and Prichard tract.

### SOUTHWEST PENNSYLVANIA

There were six wells completed in all sections of southwest Pennsylvania and of these two were small oil producers. In Perry Township, Greene County, the Peoples Natural Gas Co. drilled No. 2 on the Amanda and Warren Pyles farm deeper from the Fourth sand to the Bayard sand at 3,144 feet and it is showing for a 3 or 4-bbl. pumper. In Greene Township, Greene County, Jesse L. Gard & Co. completed No. 10 on the Maggie J. Langanecker farm in the Dunkard sand at 780 feet and it will make a 3-bbl. pumper.

In Greene Township, Greene County, the Philadelphia Natural Gas Co. completed a very fair well on the Maranda Fox farm in the Big Injun sand at a depth of 2,094 feet. It is showing for a good gas well. The test of the Peoples

Natural Gas Co. on the Alice Schultz farm, in the same township, was drilled in the Bayard sand at 3,552 feet, and it was a dry hole.

In Allegheny County the Lorish Oil Co. abandoned any further drilling in its second well on the C. Lorish farm in Brush Creek Township after reaching 2,103 feet with no showing. In Buffalo Township the southern edge of Butler County, Smith and others completed a test on the Kopak farm to a depth of 2,825 feet and through the Speechley sand and it was also a dry hole.

In Brush Creek Township, Allegheny County, the Dunkirk Oil & Gas Co. has rigged up on the Patrick Hughes farm, and O. Miller is down to 2,600 feet on the Enders Heirs farm.

## OKLAHOMA FIELDS

(Continued from Page 50)

Fixico, NW cor. SE, Section 15-11-8, in the northeastern part of Seminole County, a wildcat 4 miles north of the Cromwell Pool, flowed 180 bbls. in 45 minutes and swabbed at the rate of 70 bbls. in one hour from the Cromwell sand at 3,523-24 feet. When the swab was run the first time the hole had 2,700 feet of oil. After running the swab three times the fluid was lowered to 1,700 feet. The well later flowed 180 bbls. in 45 minutes and was shut in owing to lack of storage. There was only one 250-bbl. tank on the lease and no pipe line connection.

In the new pool south of Wewoka, Burke-Greis Oil Co.'s No. 2 Henshaw, NW cor. SE SW, Section 30-8-8, made 415 bbls. in two hours from the Smith sand at 3,138-58 feet. The well is a twin to a gas well.

In the Sacred Heart area Pure Oil Co. may drill a test in the NW cor. SW SE, Section 5-6-5, southeast of the discovery well in the area. Pure Oil Co. holds the S half SE, Section 5-6-5. The Phillips Petroleum Co. and Hicks Drilling Co.'s No. 1 Crouch, NW cor. SW, Section 5-6-5, the discovery well was shut down at 4,365 feet, in dolomite with no production and the hole full of fluid, from the Simpson formation.

### Oklahoma City's New Wells

The following wells were completed in the Oklahoma City Pool during the seven days ending December 6. Skelly Oil Co.'s No. 1 Harper-Turner, S half NE NE NE Section 3-11-3w, flowed 9,977 bbls. in four hours from the Wilcox sand at 6,263-6,434 feet; Wirt Franklin Petroleum Corp.'s No. 2 Shanan, SW cor. Section 2-11-3w, 220 bbls. in 25 minutes from sand at 6,345-60 feet; Empire Oil & Refining Co.'s No. 1 Gustine, SW cor. NE Section 1-11-3w, 160 bbls. in 15 minutes from sand at 6,403-6,561 feet; Indian Territory Illuminating Oil Co.'s No. 3 Lemon, NE cor. SW SE Section 11-11-3w, 900 bbls. in eight hours from sand at 6,243-6,530 feet; Acme Oil Co.'s No. 1 Armourdale Addition, NW cor. SW NW Section 2-11-3w, 1,628 bbls. in 30 minutes from sand at 6,245-6,484 feet, gas estimated at 50,000,000 feet a day; Tom Slick Oil Co.'s No. 2 Campbell, NE cor. SE NE Section 3-11-3w, 1,969 bbls. in one hour from sand at 6,238-6,399 feet, gas estimated at 46,000,000 feet a day; same operators' No. 1 Fixico, NE cor. SE Section 2-11-3w, made 1,459 bbls. in one hour from sand at 6,255-6,424 feet, gas volume estimated at 43,000,000 feet a day; Phillips Petroleum Co.'s No. 1 Hawkins, NE cor. SW NE Section 2-11-3w, 156 bbls. in one and one-half hours from sand at 6,160-6,350 feet, gas estimated at 53,000,000 feet a day.

### Greater Seminole Production

The production from the Greater Seminole area for the week ending December 1, averaged 184,574 bbls. per day from 2,868 wells. The first 12 pools listed below comprise the Seminole district, which averaged 125,921 bbls. a day from 1,878 wells.

| Pool— | Wells | Bbls. |
|---|---|---|
| Little River | 372 | 23,508 |
| East Little River | 84 | 11,230 |
| Carr City | 75 | 12,059 |
| Maud | 134 | 2,523 |
| Mission | 92 | 4,332 |
| Bowlegs | 279 | 13,007 |
| Earlsboro | 282 | 13,967 |
| South Earlsboro | 27 | 7,940 |
| East Earlsboro | 160 | 17,040 |
| Seminole | 255 | 12,905 |
| East Seminole | 33 | 1,903 |
| Searight | 85 | 5,507 |
| Allen | 274 | 13,242 |
| Asher | 26 | 793 |
| Wanette | 50 | 8,917 |
| Konawa | 106 | 11,004 |
| Sasakwa | 51 | 4,651 |
| St. Louis | 483 | 20,046 |
| Total | 2,868 | 184,574 |

### Greater Seminole Shipments

The pipe line shipments from the Greater Seminole area totaled 171,651 bbls. for the week ending December 1. The daily average from the various pools was as follows:

| Company— | Seminole (bbls.) | Asher, Pearson, St. Louis (bbls.) | Konawa (bbls.) |
|---|---|---|---|
| Barnsdall | 1,492 | .... | .... |
| Champlin | 4,572 | .... | 585 |
| Consolidated | .... | 2,731 | .... |
| Cosden | 7,426 | .... | 2,322 |
| Deep Rock | 2,336 | 860 | .... |
| Empire | 7,856 | .... | .... |
| Gulf | 9,990 | 1,402 | 21 |
| Magnolia | 5,327 | 4,958 | .... |
| Oklahoma | 20,867 | 100 | 145 |
| Prairie | 11,168 | 4,409 | 3,576 |
| Prod. & Ref. | 2,446 | .... | .... |
| Pure | 7,631 | .... | .... |
| Shell | 3,817 | 381 | 759 |
| Stanolind | 24,927 | 5,554 | 2,795 |
| Texas | 7,956 | 4,142 | 1,900 |
| Tidal | 8,379 | 3,310 | .... |
| White Oak | 334 | .... | .... |
| Total | 126,528 | 27,847 | 12,103 |
| Tank Cars | 2,658 | 2,515 | |
| Grand total | 129,186 | 30,362 | |

### Oklahoma City Shipments

The total shipments from the Oklahoma City Pool, for the week ending December 1, were 727,573 bbls. The daily average shipments by companies were as follows:

| Company— | Bbls. |
|---|---|
| Empire | 24,562 |
| I.T.I.O. | 4,216 |
| Magnolia | 12,052 |
| Oklahoma | 15,727 |
| Prairie | 3,124 |
| Stanolind | 40,300 |
| Shell | 1,913 |
| Tidal | 1,386 |
| Healdton | 659 |
| Total | 103,939 |

### Oklahoma City Production

The following wells were on production during the seven days ending December 1, in the Oklahoma City Pool, under the proration orders. All other wells were shut in and will be opened and produced according to the curtailment plan.

| | S-T-R | No. | Prod. bbls. |
|---|---|---|---|
| Anderson-Prichard: | | | |
| Gibbons | 1-11-3w | 4 | 17 |
| Graham | 2-11-3 | 1 | 206 |
| Habegger | 14-11-3 | 1 | 295 |
| Key | 2-11-3 | 1 | 186 |
| Moore | 2-11-3 | 1 | 104 |
| Pest House | 2-11-3 | 2 | 875 |
| Roosevelt Place | 2-11-3 | 5 | 1,479 |
| Brown, et al | 14-11-3 | 1 | 1,889 |
| Blackstock et al: | | | |
| Harvey | 15-11-3 | 1 | 416 |
| Blackwell: | | | |
| Clemer | 10-11-3 | 1 | 661 |
| British-American: | | | |
| Eckroat | 10-11-3 | 1 | 697 |
| Continental: | | | |
| Sudik | 6-10-2 | 4 | 200 |
| Cromwell-Franklin: | | | |
| T. Park | 13-11-3 | 31 | 5,935 |
| Denver P. & R.: | | | |
| Harvey | 15-11-3 | 1 | 1,076 |
| Whitten | 14-11-3 | 1 | 906 |
| Hall-Briscoe: | | | |
| Holmes | 10-11-3 | 5 | 4,030 |
| Muller | 2-11-3 | 1 | 1,002 |
| Heeman-Coe: | | | |
| Cunningham | 1-11-3 | 2 | 494 |
| I. T. I. O.: | | | |
| Banta | 18-11-2 | 1 | 12 |
| Barker, Drake | 14-11-3 | 1 | 662 |
| Bod. Anderson | 30-11-2 | 3 | 8 |
| Bodine, A. | 24-11-3 | 6 | 345 |
| Bodine, S. | 30-11-2 | 3 | 9 |
| Brokaw, A. | 13-11-3 | 4 | 289 |
| Butterfield | 11-11-3 | 1 | 592 |
| Button | 19-11-2 | 5 | 43 |
| Canfield, L. | 19-11-2 | 2 | 54 |
| Carrico | 14-11-3 | 5 | 145 |
| Coppinger | 11-11-3 | 8 | 448 |
| Coriff | 11-11-3 | 5 | 343 |
| Drake | 14-11-3 | 2 | 938 |
| Eacock | 11-11-3 | 2 | 48 |
| Emmerson, N. | 30-11-2 | 11 | 112 |
| Farley, E. | 24-11-3 | 1 | 795 |
| Farley, L. | 19-11-2 | 4 | 334 |
| Ferndale, Comm. | 11-11-3 | 6 | 247 |
| Fox | 14-11-3 | 1 | 120 |
| Holmes-Gray | 14-11-3 | 1 | 1 |
| Ivanhoe | 15-11-3 | 2 | 17 |
| Johnson | 25-11-3 | 9 | 258 |
| Jones, H. W. | 1-11-3 | 4 | 6,604 |
| Jones | 31-11-2 | 14 | 2,489 |
| Jones, Comm. | 1-11-3 | 4 | 1,939 |
| Knox, May | 14-11-3 | 4 | 1,319 |
| K. Henning | 24-11-3 | 3 | 29 |
| Lawrence Place | 15-11-3 | 3 | 8 |
| Lawton | 11-11-3 | 1 | 21 |
| Lemmon | 11-11-3 | 2 | 8 |
| Magnolia Heights | 14-11-3 | 1 | 91 |
| Mid-Texas | 23-11-3 | 1 | 325 |
| M. K. & T. | 35-12-3 | 4 | 565 |
| Okla. State Land | 36-11-3 | 8 | 2,560 |
| Pasadena Heights | 14-11-3 | 4 | 1,153 |
| Peterson, Sad | 25-11-3 | 8 | 2,416 |
| Precure, A. | 11-11-3 | 1 | 961 |
| Precure, E. | 11-11-3 | 2 | 525 |
| Rensimer | 14-11-3 | 1 | 81 |
| Salasman | 32-11-2 | 5 | 36 |
| Speegle et al | 24-11-3 | 2 | 153 |
| Spillman | 14-11-3 | 3 | 378 |
| Sudik | 31-11-2 | 11 | 1,966 |
| Theimer, E. | 12-11-3 | 8 | 1,921 |
| Thom. Fuzzell | 13-11-3 | 3 | 21 |
| Trosper, Clar. | 14-11-3 | 4 | 1,165 |
| Trosper, C. E. | 11-11-3 | 1 | 612 |
| Trosper, E. | 14-11-3 | 2 | 1,378 |
| Trosper, H. G. | 14-11-3 | 6 | 596 |
| Trosper, L. | 12-11-3 | 2 | 849 |
| Trosper, Hughes | 11-11-3 | 1 | 108 |
| Unsell-Krager | 23-11-3 | 3 | 858 |
| Viewpoint | 10-11-3 | 2 | 813 |
| Warden, M. | 24-11-3 | 1 | 798 |
| Waters | 23-11-3 | 6 | 173 |
| Webber-Wall | 14-11-3 | 1 | 166 |
| Warner, Farley | 23-11-3 | 3 | 411 |
| Wilkie-Ander | 25-11-3 | 3 | 55 |
| Williams | 23-11-3 | 1 | 322 |
| I. T. I. O. et al: | | | |
| Boulevard, Add. | 14-11-3 | 1 | 49 |
| Mabee: | | | |
| Rusty | 10-11-3 | 1 | 3,569 |
| Mid-Kansas: | | | |
| Browning | 18-11-2 | 2 | 11 |
| Fortson | 24-11-3 | 5 | 19 |
| Mollman | 23-11-3 | 4 | 841 |
| Tros-Browning | 18-11-2 | 1 | 22 |
| Trosper, D. B. | 19-12-1 | 1 | 169 |
| Phillips: | | | |
| Ciger | 2-11-3 | 1 | 326 |
| Velt | 2-11-3 | 1 | 396 |
| Phillips-Sinclair: | | | |
| Lybrand | 2-11-3 | 1 | 921 |
| Prairie-Slick: | | | |
| Hiddleston | 19-11-2 | 7 | 163 |
| Sigman | 32-11-2 | 7 | 557 |
| Russell: | | | |
| Roosevelt | 2-11-3 | 1 | 171 |
| Shaffer et al: | | | |
| Vinita Park | 2-11-3 | 2 | 493 |
| Shell: | | | |
| Petty | 30-11-2 | 7 | 75 |
| Sinclair: | | | |
| S. Land No. 54 | 36-11-3 | 16 | 2,679 |
| S. Land No. 67 | 36-11-3 | 4 | 1,121 |
| Stamper | 30-11-2 | 6 | 178 |
| Vencl | 31-11-2 | 16 | 4,409 |
| Sinclair-Amerada: | | | |
| Kinter | 30-11-2 | 10 | 22 |
| Sinclair: | | | |
| S. Land No. 69 | 36-11-3 | 3 | 1,143 |
| Skelly: | | | |
| Fields | 10-11-3 | 1 | 605 |
| Skelly et al: | | | |
| Dillon | 2-11-3 | 2 | 460 |
| Ainsworth | 10-11-3 | 4 | 201 |
| Harper-Turner | 3-11-3 | 1 | 1,431 |
| Hoopes | 31-11-2 | 3 | 513 |
| Tanner | 10-11-3 | 2 | 817 |
| Slick, T. B.: | | | |
| Bailey | 1-11-3 | 1 | 408 |
| Campbell | 3-11-3 | 1 | 1,341 |
| Classen | 2-11-3 | 3 | 419 |
| Foote | 2-11-3 | 2 | 743 |
| Frost Heights | 10-11-3 | 4 | 1,209 |
| Gleason | 1-11-3 | 1 | 404 |
| Glidden | 13-11-3 | 2 | 42 |
| Martin | 1-11-3 | 1 | 312 |
| Moore | 2-11-3 | 1 | 27 |
| Redman | 2-11-3 | 1 | 14 |
| Thornton | 15-11-3 | 1 | 479 |
| Trumbley | 2-11-3 | 1 | 34 |
| Slick et al: | | | |
| Alexander | 2-11-3 | 2 | 403 |
| Atkinson | 1-11-3 | 2 | 1,253 |
| Baker | 1-11-3 | 5 | 1,432 |
| Crawford | 1-11-3 | 1 | 310 |
| Danreuther | 2-11-3 | 3 | 91 |
| Dunivan | 1-11-3 | 1 | 440 |
| Houghton | 1-11-3 | 1 | 268 |
| Miller | 2-11-3 | 1 | 111 |
| Milner | 1-11-3 | 2 | 433 |
| Storie | 2-11-3 | 1 | 241 |
| Townsend | 1-11-3 | 2 | 92 |
| Carter | 1-11-3 | 1 | 572 |
| Hoopes | 31-11-2 | 8 | 498 |
| Slick-I. T. I. O.: | | | |
| Houston | 2-11-3 | 1 | 266 |
| Wirt Franklin: | | | |
| Eacock | 11-11-3 | 1 | 196 |
| Holder | 2-11-3 | 2 | 218 |
| Lowery | 12-11-3 | 10 | 1,994 |
| Page | 35-12-3 | 5 | 59 |
| Theimer | 2-11-3 | 12 | 1,794 |
| Theimer-Butt | 11-11-3 | 1 | 602 |
| Wright | 2-11-3 | 3 | 46 |
| Total | | 653 | 99,433 |
| Last week | | 649 | 77,037 |

New wells, 4; increase, 22,401 bbls.; average per well for pool, 152 bbls.

### Caddo County

Magnolia Petroleum Co.'s No. 4 Medrano, NE cor. SW, Section 36-6-10w, has been completed for 30 bbls. on the pump, from broken sand 3,260-86 feet, total depth 3,504 feet. No. 8 Lindsey, NE cor. NW SE, Section 36-6-10w, is pumping 63 bbls. after swabbing 175 bbls. from sandy shale 3,385-92 feet.

### Creek County

A. A. Bailey and Johnson's No. 4 Weaver, SW cor. NW NW, Section 18-19-9, is a rig. Dixie Drilling Co. has the rig up for No. 5 Walker, NE cor. SW SW, Section 21-18-9. R. F. Moore and others moved the rig in for No. 1 Thompson, SE cor. NW, Section 17-17-8. Hanan & Grant's No. 1 Garrett, SW cor. NE, Section 20-16-10, is a machine rigging up. Dixie Drilling Co. made location for No. 1 Lewis, NE cor., Section 7-14-10. Colvin and others made location for No. 1 Bruner, SE cor. NE NW, Section 15-14-10. Westfall Drilling Co.'s No. 1 Williams, NE cor. SW NE, Section 28-19-8, has been abandoned at 3,270 feet. O. M. Irelan's No. 1 Bible, NE cor. NW SW, Section 20-19-9, is dry and abandoned at 2,548 feet. Beal & Plumb's No. 3 Willby, NE cor. SE NW, Section 26-18-9, has been abandoned at 2,040 feet. Phillips Petroleum Co.'s No. 4 Charles, SE cor., Section 25-15-7, made 300 bbls. in sand 3,724-83 feet. Lima Oil & Gas Co.'s No. 5 Benjamin, SW cor., Section 30-15-8, has been completed for 650 bbls. in Wilcox sand 3,746-59 feet. Tibbins Oil & Gas Co.'s No. 4 Carter, CSL SE NW, Section 18-14-9, made a 30-bbl. well in sand 2,332-66 feet.

### Grady County

Padgett & Cooper moved timbers in for No. 1 Miller, NW cor. SW, Section 25-4-8w. Natural Gas Producing Corp. has rig timbers on the ground for No. 1 Jolly, NW cor., Section 36-4-8w. No. 1 Barry, CWL NW NE, Section 25-4-8w, has been completed for 20,000,000 feet of gas in sand 1,955-90 feet. Joe Ray's No. 1 Johnson, SE cor. NE NW, Section 6-3-5w, has been abandoned at 2,005 feet.

### Hughes County

Gilcrease Oil Co.'s No. 1 Deere, NE cor. SW, Section 20-6-9, is dry and abandoned at 1,825 feet.

### Kay County

Nickolls & Riggs' No. 1 Smith, SW cor. NW SW, Section 9-26-3, has been abandoned at 531 feet. No. 2 Smith, SW cor. NW SW, Section 9-26-3, has been shut in for 1,250,000 feet of gas at 493 feet. No. 3 Smith, NW cor. SW SW, Section 9-26-3, is dry and abandoned at 525 feet.

### Cimarron County

Magnolia Petroleum Co. and Ramsey's No. 1 School Land, C SW NW, Section 27-5-5ecm, has been abandoned at 4,758 feet.

### Latimer County

Choctaw Gas Co. has a machine on the location for No. 1 Paunocci, C SE NE, Section 3-6-22.

### Oklahoma County

Indian State Oil Co. has the rig up for No. 1 Hiland, SW cor. SW NW SW, Section 2-11n-3w, Oklahoma City Pool. Phillips Petroleum Co. has the cellar dug for No. 1 Johnson, S half NW SW SE, Section 3-11-3w. T. B. Slick estate and Atkinson's No. 2 Atkinson, SW cor. NW NW, Section 1-11-3w, made 12,768 bbls. in 18¾ hours from sand 6,290-6,418 feet. Anderson & Prichard's No. 5 Gibbons, NE cor. SW NE, Section 2-11-3w, had detrital at 6,120 feet, total depth 6,500 feet and made 1,579 bbls. in eight hours. No. 1 Moore and others, SE cor. NE NW, Section 2-11-3w, has been completed for 5,093 bbls. in eight hours from detrital 6,205-6,527 feet. No. 3 Roosevelt Place, NW cor. NE NE, Section 2-11-3w, made 11,206 bbls. in 17 hours from detrital sand 6,113 feet, total depth 6,457 feet. No. 4 Roosevelt Place, NE cor. NW NE, Section 2-11-3w, was completed for 9,267 bbls. in 16 hours from sand 6,150-6,500 feet. Phillips Petroleum Co.'s No. 1 Lybrand, SW cor. NW, Section 2-11-3w, gauged 35.895 bbls. in 17¼ hours from sand 6,266-6,355 feet. T. B. Slick estate's No. 1 Campbell, NE cor. SE NE, Section 3-11-3w, has been completed for 25,063 bbls. in 16 hours from detrital sand 6,258-6,570 feet. No. 1 Classen Edwards, SE cor. SW, Section 3-11-3w, made 36,125 bbls. in 17 hours from detrital sand 6,325-6,470 feet. Skelly Oil Co.'s No. 1 Fields, SW cor. NE NE, Section 10-11-3w, made 11,548 bbls. in eight hours from detrital sand 6,266-6,502 feet. Cromwell- Franklin Oil Co.'s No. 29 Trosper Park, NW cor. SW NW, Section 13-11-3w, has been completed for 8,000,000 feet of gas in sand 6,325-45 feet. Indian Territory Illuminating Oil Co. and others' No. 4 Clarence Trosper, SW cor. NE, Section 14-11-3w, made 5,901 bbls. in 8½ hours from sand 6,438-88 feet. No. 1 Webber-Wall, SE cor. NW SW, Section 14-11-3w, had sand 6,350-6,550 feet and made 1,164 bbls. in eight hours. Denver Producers & Refiners Corp.'s No. 1 Harvey, S half SE

SE SE, Section 15-11-3w, had detrital sand 6,335 feet, total depth 6,589 feet. from which it made 14,316 bbls. in 16 hours.

**Cleveland County**

Continental Oil Co.'s No. 4 Sudik, NE cor., Section 6-10-2w, has been abandoned at 6,955 feet.

**McIntosh County**

J. E. Weible's No. 1 C. Mackey, NW cor. SW NE, Section 3-11-17, is drilling at 300 feet.

**Muskogee County**

Taylor & Geiger's No. 4 D. Tucker, SE cor. NW NW, Section 16-15-15, is spudding. J. W. Patton and others moved a machine in for No. 1 Minugh, NW cor. SW NE, Section 30-15-19. A. Bechdolt's No. 1-A Vanderslice, NE cor. NW, Section 32-15-15, has been abandoned at 1,747 feet. A. Degan and others' No. 1 Musgrove, C SE SW, Section 7-12-19, has been abandoned at 1,159 feet.

**Okfuskee County**

Eagle Picher Oil Co.'s No. 3 Tiger, SE cor., Section 35-11-11, an old well being deepened from 2,665 feet, is underreaming at 2,704 feet.

**Okmulgee County**

J. E. Wallace's No. 1-A Rentie, C NW SW, Section 11-14-14, is drilling at 100 feet. Clarmont Oil Co.'s No. 3 Replogle, CWL NW NE, Section 12-15-12, has been completed for 35 bbls. in sand 1,226-97 feet. Lavery and others' No. 2 Rentie, NW cor. SW SW, Section 11-15-14, is dry and abandoned at 1,170 feet. Manning and others' No. 1-A Banks, SE cor., Section 5-13-12, is dry and abandoned at 2,360 feet.

**Osage County**

Kay County Gas Co. has the rig on the ground for No. 9-B, SE cor. NW SW, Section 22-24-7. Galt-Brown Oil Co.'s No. 1, NW cor. SW, Section 14-24-8, is drilling at 300 feet. Mid-Co Oil Co.'s No. 14, NE cor. SE SE, Section 18-22-10, is an old well rigging up to deepen from 1,900 feet. Turman Oil Co.'s 6, NE cor. SW SW, Section 11-21-8, is rigging up. Oklahoma Natural Gas Co.'s No. 1,820, SE cor. NW, Section 3-20-12, is a machine rigging up. Bacon & Voyles' No. 8, SW cor. NW SW, Section 30-23-9, has been completed for 10 bbls. in sand 475-86 feet. Union Oil & Mining Co.'s No. 1, NW cor. SW NE, Section 32-23-10, is a dry hole at 2,484 feet in Silicious lime topped at 2,479 feet.

**Pawnee County**

Sikes and others' No. 4 Copeland, NW cor. SE SW, Section 26-20-9, is drilling at 150 feet. Wilson and others' No. 1 Ruble, NE cor. NW NW, Section 7-20-8, has been abandoned at 2,805 feet.

**Pittsburg County**

Central States Light & Power Co. has a machine on the location for No. 2 L. Bascom, NW cor. SE, Section 10-7-18.

**Stephens County**

King Royalty Co.'s No. 9 Taliaferro, SE cor. SW SW, Section 27-1s-8w, is rigging up. Slab Oil Co.'s No. 2 Malechi, SE cor. SW NE, Section 31-1-8w, has been abandoned at 1,924 feet.

**Seminole County**

Producers & Refiners Corp.'s No. 4 A. Davis, NW cor. SW NE, Section 13-7-6, Little River Pool, has been abandoned at 4,242 feet.

**Tulsa County**

Campbell and others' No. 1 Grayson, NE cor. NW, Section 4-19-14, has been abandoned at 1,295 feet. H. C. Deems and others' No. 1 Grayson, NW cor. SE NE, Section 18-19-14, has been completed for 8 bbls. in sand 1,309-25 feet, total depth 1,375 feet. Mays Drilling Co.'s No. 1 Hollingsworth, NW cor. SW, Section 10-18-15, is a dry hole at 1,144 feet. Preston and others' No. 2 Perryman, NE cor. NW NW, Section 4-17-14, is a dry hole at 510 feet.

**Wagoner County**

Larsarsky and others' No. 4 F. Tucker, SW cor. NE NE SW, Section 25-17-16, is making 20 bbls. from sand 1,300-33 feet. William La Pierre's No. 1 L. Scott, NW cor. NE, Section 3-16-16, has been abandoned at 921 feet.

## CALIFORNIA FIELDS

(Continued from Page 64)

and the Union hold acreage which looks good for production. The Lost Hills Field is located southeast of the Kettleman Hills Field and northeast of the Belridge Field.

In addition to the deep test under way at Lost Hills, the Richfield Oil Co. has another promising well under way in the North Belridge Field approximately 7,500 feet northwest of the Belridge Oil Co.'s No. 15, which revealed the existence of deep Temblor production in the latter area a few months ago. The Richfield's well, located in Section 22-27-20, is scheduled to be given a production test some time within the next week. The log of this well shows sufficient oil sand to justify the expectation of resulting in substantial production, exceeding even that of the initial completion in this field. It is logical to assume in view of development work already under way that the North Belridge Field of Kern County will prove an important factor in state production during 1931, provided that the California gas conservation law does not mitigate against this probability.

## MICHIGAN FIELDS

(Continued from Page 64)

and a streak of red lime at 3,695 feet. It was drilling below 3,700 feet with no show of oil, gas or water.

Since the red limestone, considered the best indicator in the Niagara formation, was struck at 3,642 feet in the unsuccessful deep test of the Johnson Oil Refining Co.'s No. 1 Kate Sovacool in Section 1-10n-17w, Laketon Township, about a quarter of a mile outside the proved field, little hope of success is held for the No. 5 Heinz deep test.

A. S. Cochran's No. 2 Taggart, SE SE, Section 5-10n-16w, Muskegon Township, about 1,000 feet northwest of the Heinz well, was shot and tied into the Continental Motors Corp.'s gas line for less than 100,000 feet a day production struck at about 2,260 feet in the Monroe formation.

Four other wells which were to have been deepened at least to the Monroe formation are shut down and casing is being pulled from a fifth which drilled to 2,300 feet but was practically dry making a show of only about 20,000 feet at 2,262 feet. This was the Republic Oil Co.'s No. 2 George S. Brand well, SE SE, Section 11-10n-17w, Laketon Township.

**Broomfield Gas Well**

The Wittmer Oil & Gas Properties' No. 1 McArthur, in Section 9-14n-6w, Broomfield Township, had an initial production of 1,000,000 feet of dry gas in the Marshall formation. The formation was topped at 1,365 feet and the gas was struck at 1,366-76 feet. At first it gauged only 500,000 feet but the production doubled without further drilling. This well is about half a mile southwest of the group of large gassers in Broomfield Township which now have an estimated aggregate open flow of more than 20,000,000 feet.

Representatives of the East Ohio Gas Co., reported to be interested in piping the gas to Mount Pleasant, are watching this and other gas developments in the Marshall formation in Broomfield, Denver and Isabella Townships, Isabella County, and in the vicinity of the village of Clare where several gassers have been brought in during the past year.

Principal drilling activities for the coming months, limited as they probably will be, are expected to center about Mount Pleasant where gas and oil developments are attracting equal attention at present.

Of nine wells completed during November, 1930, five were oil wells and four dry gassers ranging from 500,000 to 3,500,000 feet initial production.

The Pure Oil Co. has taken out permits to drill seven wells, completing several of its blocks of acreage in the proved field.

Other developments are anticipated in Broomfield, Vernon, Denver and Deerfield Townships, Isabella County, in Clare County and other scattered wildcat areas.

November completions in the Mount Pleasant area bring the total to about 200 producers of oil or gas. Two dry holes also were completed during the month.

## GULF COAST FIELDS

(Continued from Page 58)

4,092 feet. An attempt was made to drill through salt on this dome and 1,573 feet of salt was penetrated. This company also abandoned its deep test, No. 3 State, on the Dog Lake Dome in the same district, after penetrating salt from 5,902 feet to 6,208 feet.

Two other deep wildcat tests were abandoned by The Texas Company, one at East Hackberry, Cameron Parish, Louisiana, and the other in the H. Bonny Survey, Victoria County, Texas. The former, No. 7 State, in Calcasieu Lake on the east side of the dome, was quit in salt at 5,289 feet. The Victoria County wildcat, No. 1 McFaddin, was quit at 6,684 feet. This test was 2 miles southwest of Lion Oil & Refining Co.'s wildcat gasser, No. 1 McFaddin, completed several months ago at 3,744 feet. There remains one other operation in this area, that being Lion's No. 2 McFaddin, 600 feet west of the discovery well, located in the C. O. Edwards Survey. That test, drilled to 6,454 feet in exploration for oil after passing up the gas horizon at 3,700 feet, is to be completed by the Houston Gulf Gas Co. in the gas horizon.

Other abandonments were Deering and associates' No. 1 Munker, Darius Gregg Survey, Grimes County, quit at 3,521 feet; Sun Oil Co.'s No. 27 Mitchell, former shallow well at Liberty, quit after deepening to 890 feet; Empire Gas & Fuel Co.'s No. 14 O'Brien, Liberty, quit in salt at 3,946-4,473 feet; and Mike Kouri's No. 1 Jones fee, Pierce Junction, which tested salt water at 3,672 feet.

Shell Petroleum Corp.'s No. 2 Herff failed to extend production at Moss Bluff to the south flank of the dome when it tested salt water in sand at 5,784-5,804 feet. Screen now is being pulled preparatory to deepening the hole. An attempt to open a new deep sand and extend the Hankamer Field eastward also failed during the week when Gulf Production Co.'s No. 1 Ezzell tested salt water at 5,808 feet. It also will be deepened.

## SOUTHWEST TEXAS FIELDS

(Continued from Page 56)

and the Chapman & Kemp's No. 1 Cone last week and of these seven three are actively at work.

There are half a dozen or more wildcats in both Caldwell and Guadalupe Counties. The one in Caldwell most watched is doubtless Mill's No. 1 McMahan in the eastern part of the county drilling in chalk at 2,127 feet. This well it will be remembered had about 3,000,000 feet of gas at about 950 feet and operators are looking for something more when they reach the Edwards lime which is the next big chance at production. Top of the chalk is carried at about 2,115 feet.

In Guadalupe County J. S. Suttle's (Wurzbach) No. 1 Wurzbach, 2 miles west of Kingsbury, drilling in chalk at 1,945 feet, with top of the chalk at 1,790 feet, is the most likely thing. Another week or two and it will be in the Edwards lime and the verdict rendered.

Rycade Oil Corp. and Getty Petroleum Corp.'s No. 1 Johnson in the western corner of Wilson County and about 15 miles east of San Antonio is going to get attention. It is now rigging up.

West of San Antonio along the fault there is less activity than on the east. United North & South Oil Co.'s deep test in the southern part of Medina County got a fishing job at 4,240 feet which delayed it.

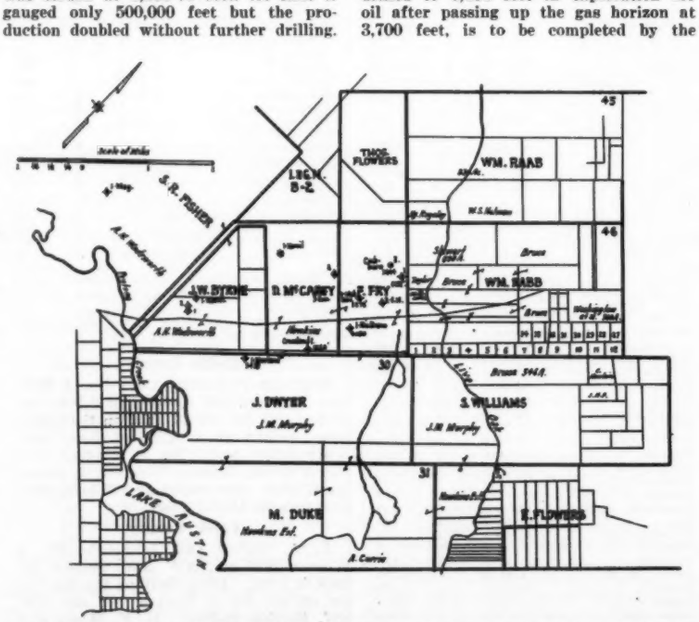
The next most likely thing in that part of the country is the National Oil Co.'s No. 1 Howard, east of the Adams gas field and northwest of Devine. It made a small commercial well in sand at 1,610-45 feet but the owners have decided to go on down to the Edwards lime which was their first intention. It has been standing for some weeks.

Two drilling wells in Uvalde County are shut down and likewise two in Val Verde County. Phantom's No. 1 Ingram cemented around lost tools at 3,040 feet and the Permian Basin Oil Co. is getting ready to test. Total depth is 5,560 feet and when the crew started running casing they found they had to stop and strengthen the derrick. This well is said to have some pretty good showings and something is really expected of it when it comes to test. If it makes a well there will be quite a story, for it has been several years in drilling and may have hung up a record for all time on the amount of hole carried for so many years in such straight condition and uncased.

**North of Balcones Fault**

The territory north of the Balcones fault is in much the position of the Pettus-Raccoon Bend stretch a few years ago. No one denied there might be a lot of oil in the area but were waiting for someone else to go in and find it. L. L. Evan's No. 1 Love in Kerr County has materially quickened the interest in that territory and has shown enough oil that though it turns out to be a failure, it will still keep interest up. A stretch of country about 150 miles long extending from Blanco County west and about half that distance north and south with this Evans' No. 1 Love in the center is now much in the limelight. No. 1 Love will have the derrick rebuilt and operations will be resumed this week.

It is about 60 miles due east of this




*Map of Shepherds Mott, Matagorda County, showing discovery well, Cockburn Oil Corp.'s No. 1 Hawkins, and past development.*

No. 1 Love and in Kendall County that Sterling's No. 1 Werner was completed as a small well some months ago and in Blanco County another 60 miles farther east Rodson's No. 1 Glasscock is said to have had some oil in the hole over a year ago. H. L. Lewis has moved in tools and is going to drill a test near the Rodson test in Blanco.

There are 17 tests now listed in these counties above the Balcones fault where up to about a year ago there had never been a wildcat venture. In the next year or two that country with some good oil showings to its credit will be about as active as any in Southwest Texas.

**South of San Antonio**

The Penn Oil Co.'s No. 2 Lyne was running low and was abandoned at 2,760 feet. No. 1 Lyne had such an encouraging showing that it led to the making of the location for the No. 2 in the hope it would hit the structure higher up.

Gibson's No. 1 Von Roeder in DeWitt County reached contract depth last week at 4,000 feet and stopped at 4,030 feet where it is waiting for orders.

Saxet's No. 17 Rachel in the White Point Field according to the last gauge is showing an average of 100 to 125 bbls. of oil a day with 26,000,000 feet of gas. This is a deep test producing at total depth of 3,902 feet in a field where the deepest gas production is at about 2,400 feet and where there is no other oil production, hence the importance of the test. The production is on a eleven-sixteenth inch choke with pressure of 1,250 pounds on the tubing and 1,600 pounds on the casing.

In the Agua Dulce Field in Nueces County some miles west of the White Point Field Houston Oil Co. is down 4,913 feet in the No. 1 Comstock and has set casing at 4,903 feet. This is in a gas field where production is found close around 2,000 feet. On a drill stem test the No. 1 Comstock showed some high gravity oil and the test should be ready to be brought in some time the close of this week.

## LA.-ARK. FIELDS

(Continued from Page 54)

the company has derrick up for No. 1 Howell a quarter mile west. Two wells were completed and a third begun in the Urania district of LaSalle Parish by Montagu Oil Co.'s No. 9 Zenoria Lumber Co., NE NE, Section 10-9-1e, shut down for two months, was completed as a 50-bbl. pumper at 1,505 feet and No. 10 in the NE NW, Section 11-9-1e, duplicated it at the same depth. No. 11 in the NE NE, Section 10-9-1e is waiting on standard rig at 1,513 feet.

Texas-Louisiana Production Co. completed No. 1 Fisher, SW SW, Section 34-21-5, Morehouse Parish, as a dry hole at 2,550 feet. Palmer Corp.'s No. 4 Coyle, Section 26-20-4, Ouachita Parish, measured 2,205,240 feet of gas at 925 pounds pressure from 2,312 feet—which seems to offset the effect of the Texas-Louisiana failure. Pipes & Mack's location for No. 2 Union Gas Products Co., SE SW, Section 7-18-5, a wildcat in Ouachita Parish, is abandoned as were locations for Louisiana Gas & Fuel Corp.'s No. 1 J. W. Hollis, SW SE, Section 10-21-3, and No. 1 Smith, NW SW, Section 20-20-4, Union County.

The Richland Parish part of northeast Louisiana's great gas field developed three wells of average size. Southern Carbon Co.'s No. 1 J. A. Clements, SW NE, Section 10-16-6, gauged 43,596,000 feet at 540 pounds from 2,440 feet and Hemler's No. 1-C, Section 14-16-6, made 39,420,000 feet at 525 pounds from 2,450 feet. United Carbon Co.'s No. 2 C. M. Noble, Section 37-15-6, measured 29,917,756 feet at 975 pounds pressure from 2,453 feet. State Line Oil & Gas Co.'s No. 1 Boughton, NE SW, Section 33-16-6, down on the southern edge of proven territory, appears to have missed the pay. It tested salt water at 2,475 feet which is 25 feet below where 9 out of 10 Richland wells are finished; was plugged back, drilled out cement and set siphon and lost nine joints of the tubing.

**Test East of Zwolle**

Possibilities of territory 1½ miles east of the "east extension" of Zwolle will be tried out by Essco Petroleum Co. which has made location in the SW cor., Section 35-8-12, for No. 1 Louisiana Long Leaf Lumber Co. Lacy Petroleum Co.'s No. 1 Cooper, tested at 2,370 feet, dry, and is going deeper. McDaniels & Lieber's No. 2 Batson, a wildcat in Section 16-8-12, far north of Zwolle, was dry on drill stem test at 2,553 feet and shut down. P. & G. Oil Co. has made location in the SE NW, Section 21-7-12, 4 miles southwest of the nearest Zwolle production for No. 1 Williams. Toteco Oil Corp.'s No. 1 Louisiana Long Leaf Lumber Co., NW NW, Section 18-6-12, repeated at 4,245 feet its performance at about the same level several weeks ago when it blew out about 250,000 or 500,000 feet of gas, the difference being that this time there was some salt water with the gas.

**Arkansas Developments**

The old El Dorado district of Arkansas produced a well when Weisinger & Ball completed No. 8 Goodwin in the NE NW, Section 6-18-15, Union County, pumping 100 bbls. of fluid of which 85 bbls. was salt water, from 175 feet. The Fort Smith gas district of Sebastian County registered Lavaca Oil & Gas Co.'s No. 1 Davis, NW NE, Section 29-8-30, making 1,500,000 feet of gas at 260 pounds from 2,885 feet. Panola County, Texas, had Nemours Corp.'s No. 5 Brumble, in the E. F. Mitcheson Survey, making 864,000 feet of gas at 830 pounds from 2,257 feet.

H. H. Given and others are about to abandoned No. 1 Garrett in Section 1-3-19, Garland County, Arkansas, a rank wildcat on which they have been working for the last three years trying, against skeptical opinion to make a real test. The hole, total depth 3,756 feet, is reported full of salt water and the crew is pulling 5⅞-inch set at that depth. Anisman and others' No. 1 Himson, Section 19-4-16, Hot Springs County, about 40 feet east of the original Hinson well that caused a short lived leasing boom at Malvern half a dozen years ago, is reported to have had a show of gas in 14 feet of sand, total depth 1,604 feet, and set 5⅞-inch for a test. Champagnolle district of Union County caused something of a surprise when Lion Oil Refining Co.'s No. 1 Sullivan, SE NW, Section 12-17-14, blew out with approximately 15,000,000 feet of gas from 11 feet of sand, total depth 2,933 feet, the strange part of it being that it is a direct southern offset of Ohio Oil Co.'s No. 4 Pumphrey which made approximately 1,000 bbls. of clean oil from 2,990 feet when completed a month ago. No. 2 Sullivan was bailing to test a show in 15 feet of broken sand, total depth 2,995 feet. Marine Oil Co.'s No. 5-2 Thompson, SE NE, Section 10-18-13, Urbana district, tested 15 joints of oil in the six minutes the testing tool was open, and cemented 6⅝-inch pipe at 3,530 feet to bail the 5 feet of sand that produced the show.

## ROCKY MOUNTAIN AREA

(Continued from Page 60)

County, northeastern Colorado, which came in on October 10 at 6,667 feet flowing by heads, probably will resume drilling this week. The equipment, including control head and valves, is all on hand and ready to be put in place. These are rated capable of withstanding a pressure of 5,000 pounds. The plan is to connect the 4¾ and 6¼-inch with a set of slips, then put in a packer to shut off the water between the 6¼ and 8¼-inch strings and tie these strings together. A slight delay has resulted from the necessity of sending away for dies to cut the 4¾-inch string at the top. When this work is completed, the intentions are to run the tools and begin making new hole. The exact day for the resumption of drilling depends on the completion of this preliminary work, but the next 10 days ought to disclose results. The well continues to make between 120 and 130 bbls. a day natural. Opinions as to the identity of the formation in which the hole is bottomed vary to a large extent, some asserting it is in shale just above the Muddy, the first sand in the Dakota series, while others are equally as positive the Muddy was not in place and that the hole is in the top of the Dakota. Back of these opinions are predictions as to what will happen when the well is deepened, but the important and outstanding fact is that the well, regardless of the formation, or whether it is on top or the edge of a structure, has definitely proved the presence of oil out in the plains area away from the front of the mountain range and is the forerunner of an extensive wildcatting campaign. Just how soon this will take place is not certain as the majority of the leases being taken are commercial 10-year leases without drilling clauses.

The Platte Valley company has about straightened up its lease situation and is ready to go ahead with the development of its plans. President Stahl says four or five major companies have made propositions for developing part of the company's acreage and taking the oil, but that it will not make any deal until the well is drilled in.

**Morgan County**

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan district, has not made any new hole below 3,670 feet since the 8¼-inch froze. After failing to free the string and lower it to bottom, it was decided to run 6¼-inch and at last reports this was being done.

**Larimer County**

Continental Oil Co.'s No. 3 Scott, SW SE, Section 6-9-68, Wellington Dome, is bottomed at 4,645 feet and is preparing to cement 4¾-inch. This was an old producer in the Muddy which is being deepened. It tested the Dakota and Lakota, both of which contained water, and is trying to go down to the Morrison and probably the Sundance. C. Leonard Smith's No. 1 State, SE cor., Section 36-12n-70, Sand Creek, is drilling at 327 feet and carrying 10-inch. All the remaining wells in Larimer County are reported shut down.

**Arapahoe County**

McDeb Drilling Co.'s No. 1 Fitzsimmons, C S half NE, Section 7-4s-66, near Aurora, which has been held up at 5,692 feet for several months with casing trouble, appears to have straightened out the difficulties and the tools now go to the bottom. It is planned to drill a little deeper before running a string of 4¾-inch and it is expected that drilling will be resumed December 8.

**Lincoln County**

Kelly Oil Co.'s No. 1 State, SE cor. NW, Section 36-14-57, is shut down at 3,380 feet. No new hole has been made since last May. The last 10 feet had some shows of oil and gas in shale, but these were cemented off before drilling stopped on account of the ground being cavy. Officials claim the Dakota has not been reached.

**Jefferson County**

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is bottomed at 3,795 feet and underreaming 6⅝-inch to shut off cavy ground.

**Pueblo County**

Kuykendall Oil Corp.'s No. 1 Beecher, SW cor., Section 7-22s-66, Rock Creek district, has been taken over by the North American Oil & Land Co. and drilling will be resumed this week. It is bottomed at 1,000 feet in the Morrison formation, at which depth the contract with Allen & Hill was completed. The new company will take the hole down to the Sundance. The well is about 300 feet from a fault that runs in a southeastern direction from the Florence Field in Fremont County. The North American company has oil leases on the holdings of the North American Savings & Loan Co., including tracts in the Greasewood district and other areas. C. D. Cunningham of Denver will be in charge of the oil operations.

**Park County**

South Park Oil Co.'s No. 1 Milligan, NE SE, Section 13-8s-76, Jefferson district, has mudded 8¼-inch at 1,580 feet to shut off water, tied the four strings together at the top and is preparing to resume drilling. One thousand feet of water is being carried as a precautionary measure as the hole is showing a little gas and oil. It is supposed to be bottomed in the Frontier.

**Routt County**

Fish Creek Oil & Gas Co.'s No. 1 Omholt, NE cor. SE, Section 29-4n-87, Fish Creek structure, is reported to have spudded on November 12 and to be drilling at 200 feet in brown sandy shale with the 12½-inch at 110 feet. There was a show of gas at 70 feet. The Texas Production Co.'s No. 4 Carstarphen, NE NW NW, Section 5-6n-86, Tow Creek, is drilling deeper at 3,278 feet. At this depth it showed for a producer, but failed to hold up.

**Moffat County**

The Texas Production Co.'s No. 4 Wick, NW NW, Section 10-4n-91, Moffat Dome, is bottomed at 4,646 feet and fishing for tools.

**WYOMING**

**Natrona County**

The Midwest Refining Co.'s No. 29-DT, NW, Section 35-40-79, Salt Creek, the deep test to the granite, was completed and after being tested was shut in. It was drilled through all possible horizons to the granite at 5,420 feet and was plugged back to the Tensleep at 3,782 feet. This horizon made a little better than 1,800 bbls. a day when originally drilled through and showed a little water at the bottom. After the test was completed and the hole plugged back to this horizon, it did a little better and made 1,949 bbls. in 24 hours, the crude testing 25.7° gravity. The well had production in the Wall Creek, Lakota and Sundance sands, aggregating several thousand barrels a day, all of which was cased off to continue the test. A new producing horizon was found in the Tensleep, but the Amsden, Madison and Deadwood contained water. The well is on a lease owned by the Wyoming Associated Oil Co., a subsidiary of the Mountain Producers Corp.

Wyoming Associated Oil Co.'s No. 29-SD-3, NW NE, Section 26-40-79, Salt Creek, is drilling at 2,384 feet in sand, and Midwest Oil Co.'s No. 8-SD-3, SE, Section 26-40-79, is drilling at 2,984 feet in sandy shale.

Midwest Refining Co.'s No. 11, SE NW NW, Section 32-34-77, Geary Dome, for the joint account of the Salt Creek Producers Association, Mountain Producers Corp. and the Midway-Geary Syndicate, is drilling at 4,105 feet in hard sand and shells. This test was turned over to the rotary contractors, Olson Drilling Co., at 263 feet on November 14 and has made remarkable progress for this territory. The first objective, the First Wall Creek, is expected at around 5,300 feet.

**Park County**

Resolute Oil Co.'s No. 1, NE SW NE, Section 17-57-101, Badger Basin, which at 8,255 feet encountered gas in the Frontier, which blew the tools up the hole, is fishing. The job is a difficult one on account of the depth and the gas which amounts to around 1,000,000 feet a day through the bridged hole. The Texas Production Co.'s No. 2 Sonners, C SW SW, Section 20-51-100, Oregon Basin, is drilling in the Embar at 3,702 feet. It began to show saturation at 3,663 feet. Continental Oil Co.'s No. 27-Elk-2, NE NE, Section 24-58-100, Elk Basin, is bottomed at 1,497 feet in the second Frontier and is running rods and tubing. Midwest Refining Co.'s No. 31 Rosenberg, SW cor. SE, Section 24-58-98, Frannie Dome, is drilling at 2,900 feet in shale with the 8⅝-inch at 2,893 feet. It is being carried down to the Madison lime.

**Fremont County**

Producers & Refiners Corp.'s No. 10, NW cor., Section 14-32-95, Sand Draw, is coring sandy shale at 3,777 feet with 10-inch cemented at 3,426 feet. It is below the gas sands in the upper Frontier and is supposed to be drawing close to the Dakota in which it is hoped to find oil. The same company's No. 2, SE NW, Section 33-34-92, Muskrat Dome, is coring in broken shale at 4,857 feet. It, also, has the Dakota as the next objective after finding gas in the upper part of the Frontier. The Texas Production

(Continued on Page 190)

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# Fair Refined Oil Movement on Contract

## Prices Believed to Be at Bottom With Good Upturn Expected During Next 90 Days. Chicago Spot Business Slight

By John B. Waldo

CHICAGO, Dec. 8.—There was a fair movement of petroleum products today but it was chiefly on contracts, very little new business originating in this market. Major refiners express themselves as satisfied that their contract customers are giving them all the business that they have to give with very few exceptions and that any falling off from their quotas is due to lack of business only. The same story is still told regarding the number of 1 and 2-gallon fills, even the largest distributors complaining that they never had so many small sales in the course of their business.

Under some desire for immediate orders in the spot market, several refiners are making the lowest quotations probably ever known in this market, wires to marketers showing a decline in prices since the close of last week of an eighth to a quarter cent on the usual grades of gasoline. These quotations are sent frequently by so-called purchasing agents whose price includes a charge of $5 a car. Several prominent oil men stated that it was their belief that the bottom had been reached and that purchases made at the indicated market at present would show a good profit in 90 days the trouble being to secure that much time in which to take the oil out.

The furnace oil demand was also largely confined to instructions against previous orders. The demand for distillate is barely holding its own as compared with gas oil and distillate was more freely offered at slight concessions in price. The most wanted items were straw gas oil and the 28-30 fuel oil. The tank wagon distributors were the ones ordering out material and their purchases included some 18-22 zero fuel oil. The movement in the heavy fuel oils to the industries showed little change from previous conditions. Prices for zero fuel oils continued firm with the higher cold tests rather freely offered at less costs. The lubricating oil business today was unimportant in amount, some instructions against contracts being the chief movement. The weather continues mild with much fog or rain.

Last week was not one of importance in the Chicago oil market. There was something going on all the time but the orders were limited and the price trends tended to sag under the indifference of buyers rather than any active effort to purchase for less money. The honorable exception was the furnace oil division which showed a fair amount of activity, especially the first part of the week when the weather was colder. Reports brought back from the state meetings of the jobbers are not to the effect that the jobbing trade is optimistic regarding its future business. The jobber is having a good deal to contend with and the slow payment of accounts is one thing that is pressing the average jobber to a considerable extent. It is not at all uncommon to hear of jobbers who have laid up tank wagons and discontinued soliciting the trade of the farms. They claim their reason is the inability of the farmer to pay cash for his purchases and their inability to secure credit which will enable the jobber to carry farmers' accounts. There have been too many suspensions of the country banks to permit of easy loaning on the part of the banker, which would be necessary to allow the oil man or anyone whose trade is with the farmers, to sell on credit all that they really need, yet it is the lack of the farmer buying that is doing so much to hold down our industrial plants to minimum activity. So far as is known the tank wagons of the major distributors are making regular trips and caring for the farmer and the independent distributor in some states is losing just that much business simply because he cannot carry the accounts.

The gasoline demand was a little less than seasonable last week, judging from the fact that many jobbers are not taking the full quantity under their contracts, although giving their refiner all the business that they have to give. The gasoline tax laws in the various states provide for the publication of the amounts paid in taxes or if the law does not make the publication mandatory, the list of tax payments are easily secured by any oil refiner. These lists afford a good opportunity for the refiner to check his customers' sales against the amount of gasoline ordered out on contract, and the reports made are to the effect that the jobbers are, as a rule, giving the refiners all the business they have, although in many cases the orders placed are not sufficient to absorb the full quota of gasoline contracted for delivery during the month. The major distributors are still holding to the 5¼-cent price as their spot gasoline quotation. They admit that orders for spot cars are very scarce.

### Field Stocks Not Large

According to reports received by the local sales offices, stocks of gasoline in the field are not large, at least the stocks of U. S. Motor gasoline held by the major Group 3 refiners were not at all excessive and in the Middle West the conditions showed a great improvement in this direction. The consumption as gathered from available reports indicates that the total amount of gasoline used at home and exported will be at least on a level with 1929. Some claim that the entire quantity will be a small percentage less, but in any event there has been a large consumption and the falling off, if any, will be much less than in any of the other great basic industries. The amount of crude produced is the least for four years. Then why this hesitating attitude in all branches of the industry which suggests a lack of confidence in the immediate future of prices and of demand? There are two things, one of them is the possibility of overproduction of both crude and of refined products. All know that conditions are at present due to artificial barriers erected to reduce the current takings of crude from below the surface or the refining of that crude into its products after it has been put in the storage tanks. So the average oil man in studying the situation is confronted with two factors, one the possibility of a continued overproduction of both crude and its refined products, and, second, the present restriction of banking credits which prevents any attempt to expand purchases for any purpose except that which can be done with the concern's own capital. This latter condition applies to all lines. Many a manufacturer is held back from making moves which are approved as safe by experience and conditions by the inability to secure funds from his bank that are adequate in volume or for the necessary period of time. Building, which is a major industry, is restricted today by the lack of funds to carry out building projects which the banker is afraid may add to the amount of his "frozen assets" by lack of quick sales. So the manufacturer tells his help that he is obliged to wait a while before opening up his plant, and the worker tells his wife that they will have to continue to spend as little as possible until he gets a steady job.

The open market for gasoline last week was easy in prices and not active as to demand. The colder weather the first two or three days of last week curtailed the demand for gasoline in the country and enabled jobbers to stretch stocks still further. The usual quotation made was 4⅜ cents, Group 3, for U. S. Motor gasoline, but this was not the lowest price at which gasoline was offered. One refining organization which has been active in seeking business was asking 4⅛ cents of the large jobbers, but the management stated that that they found most of the larger buyers on whom they called had either bought or could buy direct at 4 cents, Group 3. Wires were received from Group 3 sellers both refiners and brokers offering what they claimed was good U. S. Motor gasoline at that price of 4 cents. This price was intended for the larger jobbers and the resellers, but some of the quotations went into the hands of concerns which specialized in either fuel or lubricating oils and greases so that the lists of recipients contained a sufficiency of names to insure a wide audience. These quotations tended to make it hard selling for the one who was trying to secure better prices as several in this market were trying to do. Several refiners and marketers refused to sell below the 4⅜-cent price quoted by several trade publications which issue daily price lists. Of course the trade feels that they should at least sell at the low of these publications and they probably would be able to do so were it not for direct offers at lower prices. One of the large buyers of gasoline in this State said that he had had several offers of U. S. Motor gasoline at 4 cents. They were from perfectly responsible sellers, some of them refiners and some of them marketers. He added that he had bought at this price week before last. Another large buyer in that State informed the writer that he had numerous offers of U. S. Motor gasoline at 4 cents and read a wire offering U. S. Motor gasoline, doctor and corrosion test, at that price which he stated had just been received. He did not wish to give the name of the sender or the origin of the gasoline but stated that he would be content to order from that source if he needed the gasoline which he did not right now. The demand for the higher gravities is light. Some business is doing in the 60-62 400 at around 4⅜ cents, Group 3, and a little in the 64-66 375 at 5 cents or a little more. There is little change in the differential territory to the east. Detroit is selling U. S. Motor gasoline at 8 gallons for $1. One of the larger distributors there has been sold to a new organization which is understood to have the backing of a large Toledo concern. The Sunny Stations were still operating and many claim that it is through some refiner giving the owner local protection. This is a mighty good argument against giving local protection if any were needed.

### Ethyl Grows in Favor

Ethyl Gasoline is growing in popular favor daily. At least this is true in this territory. Certain of the large nation-wide distributors who have hitherto relied upon their own product for an anti-knock gasoline are now coming to the makers of Ethyl fluid and negotiating for a license to blend the Ethyl Gasoline. It is quite common to hear some refiner make the assertion that his special anti-knock product was better or "had everything that Ethyl has," and then find that his concern has secured a license and is making preparations to begin the distribution at an early date. Some tests made of various antiknock gasolines do show that there are motor fuels which can take the place of Ethyl, at least in some cars. The trouble is that these motor fuels have not the advertising which Ethyl Gasoline has had both direct and through the sales agencies of the General Motors Corp., which has an interest in the Ethyl corporation, so large in fact that it has been said that they made as much money out of Ethyl as they did out of their manufacture of automobiles. Refiners have contended in several instances that the idea of mixing some foreign product with gasoline after the refining process had been completed was wrong and that there should be some way to turn out through distillation and manipulation of the crude a product which would be the ideal antiknock motor fuel.

The demand for natural gasoline has been slow in this market. Natural gasoline and naphthas are at least as expensive, if not more so, than the refined gasoline.

### Kerosene Quiet

Kerosene demand is still lacking and there is no indication of an early resumption of buying. Better liked fuel is now to be had for tractors than kerosene. Really the question is to find a profitable use for the kerosene that must be produced by some methods of refining. Soap manufacturers found a use for their glycerin as an antifreeze solution for automobiles. Maybe some use may be found for kerosene that will give it a real market. As it is, it is being run into distillate and the refiner thereby secures around 3 cents a gallon for the kerosene so used. The report is that it can be bought in its usual state for a little less money but there is no established lower quotation here.

### Furnace Oils Stronger

Furnace oils and in particular zero gas oils and the 28-30 light fuel oil have been having a real run in this market, although the demand has been limited by the return of mild weather late last week. The cold snap started buying by the consumer as practically most of the users were short of oil and wanted a fill before the end of the week to be sure to have plenty of fuel for Sunday when supposedly no oil will be delivered. Then the weather turned mild and the distributor was left with little or no demand. His customers for the most part had been filled up at the same time and a great many had oil enough for at least a month. The continuance of the demand was not large and distributors have not been in a hurry to replenish their stocks. There were on last Monday morning a good many rush orders for single cars of this or that oil, but it is less urgent now. The most wanted oil is a straw zero gas oil. There is very little of this in stock anywhere, even refineries who have contracts on this product are in short supply and as they are not running full they are making less than usual. Some refiners have given the necessity of running gas oil as a reason for maintaining or even increasing their refinery runs. Several of the Mid-Continent refiners have practically oversold their present output and will have no more gas oil to sell, outside of their contract customers. The jobbers are finding it hard to get enough straw gas oil to care for their trade and they are resorting to the method of increasing the volume of gas oil by adding a little distillate to what gas oil they are able to buy, thus improving the color but not always the quality. There have been complaints made that the gas oil supplied has run too freely and has caused burners to smoke and soot up furnaces. With kerosene masquerading as distillate and distillate moving as gas oil, the burners are receiving better oil than they were built to operate on. Some wholesale dealers state that this demand

(Continued on Page 180)

# Holding Oil Inventories to a Minimum

## Trading in Atlantic Coastal Marketing Area Is of the Hand to Mouth Variety. Little Change in Prices

By A. E. Mockler

*New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street*

NEW YORK, Dec. 8.—Aside from a further softening in the position of the fuel oil market, there was little change in the East Coast refined products situation during the past week, and quotations were without appreciable change. Business has continued along quiet lines, and hand-to-mouth operations are the order of the day. This tendency to restrict purchases has been heightened by the fact that the end of the year is in sight, and operators generally are making strenuous efforts this year to hold inventories to a minimum at the year-end.

With selling prices for refined products at unsatisfactory levels, large integrated companies are making every effort to develop new economies in order to offset low selling quotations on their products. Refinery operations are being curtailed further, and production is being concentrated in the more modern and economical units in East Coast plants.

The plan sponsored by the American Petroleum Institute for a reduction in surplus holdings of refined products to necessary levels designated as "working stocks" is getting off to a slow start, but leading interests in the industry are still strongly behind the idea, and it is probable that the coming year will witness some important progress made in that direction.

There are still some weak holdings of refined products in the East which are reaching the market from time to time at distressed prices, but the general tone of the market has been improved owing to the fact that the leading interests are not finding it advisable to meet this competition. With a continuance of this policy, these distressed stocks should be liquidated at a comparatively early date, at which time the general market will be in a position to go forward. There appears to be a general recognition of the fallacy of attempting to meet the competition afforded by stocks which must be sold, and with a slackening of this competitive pressure, it is evident that the distressed stocks were not as extensive as had been feared in some quarters.

### Refinery Gasoline

While seasonal slackening in volume of trading in the refinery market has again been in evidence, the position of the local market appears to have firmed up slightly. Refiners are holding at the posted price of 7 cents per gallon for U. S. Motor in tank car lots at refinery terminals, and, while this price can be shaded in some quarters, price cutting is not as frequent as was the case during the latter part of November.

The barge market, which has developed to the point where it is an extremely important index of gasoline market conditions in the East, has definitely firmed up this past week. Refiners were quoting at 6⅝ cents per gallon for U. S. Motor in barge lots at the close of the week and it appeared that this figure was pretty close to rock bottom in the present market. A few weeks ago, gasoline in barge lots could be bought down to 6⅛ cents a gallon in the local harbor.

Offerings of California gasoline for shipment to East Coast ports are not as numerous as was the case in recent weeks, and the market has stiffened somewhat. U. S. Motor from the Gulf, it was reported locally, could be laid down in New York at around 6 cents per gallon, but there was little buying interest shown and the general feeling appeared to be that to land a full cargo of outside gasoline here under present conditions, even though the oil could be laid down at a cent under the posted price, would represent quite a gamble.

### Tank Wagon Gasoline

Cold weather has retarded sales somewhat, and gallonage is easing off further. This is a seasonal development, but marketers report that aggregate gallonage is holding up much better than expected, and current sales are running somewhat in excess of those for this time last year.

Tank wagon prices were marked up 1 cent per gallon in New Jersey during the week as a result of the increase from 2 to 3 cents per gallon in the state sales tax, but with this exception there was no general change in East Coast territory.

Premium fuel sales are holding up well, and slight percentage gains in the volume on these gasolines, as compared with ordinary grades, are reported by most marketers.

### Kerosene

The refinery market has been rather quiet this week, but a fairly steady tone rules. On 41-43 water white in tank car lots the posted price is 6½ cents per gallon, with some sales going through at 6¼ cents. Weakness in the Gulf market has had a softening influence on the position of kerosene here, while East Coast refiners report increasingly stiff competition from Pennsylvania refiners in some areas where the Pennsylvania product enjoys a preferential freight rate.

Gallonage has been well maintained in the tank wagon kerosene market, and prices are without change in this area.

### Lubs

Lub oil markets have taken on a sluggish tone during the week, and there has been a dull market prevailing throughout. Buyers are deferring purchases until after the turn of the year in order to bolster up their year-end inventory position, and export buyers are also remaining aloof.

While quotations for cylinder oils have shown no further declines, it is still a buyers' market on most grades, and some price shading is being done on the limited volume of business which is actually being done.

Red and pale oils are also affected by current dullness, and tank car movement from local refineries has fallen off. Refiners, however, look for some improvement after the turn of the year.

### Fuel Oil

The bunker market remains unchanged this week at $1.05 per barrel, in bulk, f.o.b. terminals, with the usual charge for lighterage alongside within harbor limits. Withdrawals of bunker oil on contract by the marine interests have eased off somewhat, in line with curtailed activities in shipping and the laying up of some vessels for winter repairs.

The domestic fuel oil market is in rather easy position, and, while leading refiners are quoting $1.05 per barrel in bulk at terminals on this business here, some price cutting is being indulged in, and the stability of the market appears considerably threatened by this development. Sales were reported at Philadelphia during the week at 85 cents per barrel.

The Gulf market for fuel oil has also substantially weakened, and offerings in cargo lots are reported to have been made at as low as 60 cents per barrel, which figures out considerably under $1.05 laid down at North Atlantic United States ports.

While every effort is being made by principal refiners to bolster the market through reductions in output, there is a strong likelihood that the $1.05 price will not stand, it is believed here, and bunker "C" at $1 or under is regarded as a strong possibility next year. Reports from London to the effect that British and Dutch oil leaders are sympathetic to the idea of a higher crude market to benefit small independent producers, however, may change the situation in the fuel oil market for the better.

### Furnace Oil

The eastern territory has experienced a prolonged cold spell during the past fortnight, and this has brought out a considerable increase in demand for domestic heating oils.

The market has steadied, both at the refineries and in distributing channels, as a result of the heavier consumption, and refiners are viewing the immediate outlook for this branch of the market with more confidence. Stocks of furnace oil are fairly large, but consumption totals in this area are reported to be establishing new high records, and the outlook for a fairly stable market over the remainder of the season has been considerably improved by recent developments.

### Diesel Oil

Refiners have their contract business pretty well lined up for 1931 and are looking for a steady broadening of the market for this oil. While the situation in the shipping industry is reflecting current depression in other lines of business, this is not expected to adversely affect the consumption of Diesel oil. Ocean freight rates are at such low levels that only the most efficient and economically operated vessels are able to run at a profit in many instances, and this has forced shipowners to concentrate their operations on Diesel oil-burning vessels.

A substantial volume of new tonnage, now under construction, will be placed into service during 1931, the petroleum industry itself accounting for a considerable portion of this new Diesel tonnage.

The current posted price on Diesel oil remains at $2 per barrel in bulk at refinery terminals, and, while the market undertone is less firm than was the case earlier in the year, no indication of any immediate cut in refiners' price schedules is evident.

### Gas Oil

There is considerable competition among eastern refiners for the 1931 business of large eastern gas-manufacturing companies, and it is reported that business is being taken at rather low levels.

Eastern refiners are not only confronted with the necessity of competing among themselves for this business, but are also confronted with competition from Gulf, California and South American refiners.

The posted price for 28 plus recycled gas oil is unchanged at 5¼ cents per gallon but this quotation is being freely and substantially shaded in the spot market. This price applies to gas oil in tank car lots at the refinery.

### Paraffin Wax

While the market is subject to shading on business for prompt and nearby shipment, sellers have made no change in their quoted prices in the open market, and the schedule remains unchanged at last week's levels. It is reported, however, that these prices can be shaded by an eighth cent per pound on the average.

Domestic demand for paraffin has eased off further, and the market is virtually stagnant. The export market is a little more active, but buyers are interested only in offerings "at a price."

The statistical market position of paraffin wax is far from favorable. October production was sharply off, totaling but 38,080,000 pounds, as compared with 43,960,000 pounds in the previous month and 56,377,000 pounds in October last year. Domestic demand, however, eased off from 20,748,000 pounds in September to 18,415,000 pounds in October. Stocks on hand as of October 31 this year totaled 240,060,000 pounds, a substantial gain over the 190,727,000 pounds held on October 31 last year.

Curtailed operations by Pennsylvania refiners is expected to work for some betterment in the market position, but considerable quantities of surplus wax will have to be liquidated before this improvement can be expected to be reflected in the price basis.

### Petrolatum

Domestic consumption of petrolatum has been running into fairly substantial totals this year, and the market for this product has held up much better than has been the case with other refined petroleum.

Pharmaceutical manufacturers in this country are using petrolatum in large quantities, and there has been a good contract movement over the past few months at steady prices.

Export demand has eased off somewhat during recent weeks, but the total for the year, it is reported, will show a gain over 1929 figures with many sellers.

### Export Market

Gulf prices have again worked into lower position this week, under continuous inactive trading. Kerosene has shown the greatest break, with quotations down a half cent per gallon at 4 cents for prime white and 5 cents for water white in round lots for bulk shipment. Relatively little kerosene export buying has been reported from the Gulf during recent weeks, and continually growing stocks have made for a weak market position.

Export gasoline has also eased off, however, with Navy down a quarter cent at 5¼ cents per gallon and 64-66 showing a similar decline to 6¼ cents per gallon, other grades remaining nominally unchanged.

A large American company booked a cargo of 8,000 tons for its French subsidiary during the week, the cargo being made up of 500 tons each of prime white and water white kerosene, 1,500 tons of Navy gasoline and 5,500 tons of 64-66.

Fuel oil for export in cargo lots was in weak position at the Gulf, and it was reported that business could be booked at 60 to 62½ cents per gallon there.

Mexican crude has weakened in sympathy with the easy market for American crudes, but the Venezuelan market is still fairly tight. A local buyer entered the market for a cargo of Venezuelan crude during the week, but was unable to obtain an offering. Practically all of Venezuela's production is either controlled by the "Big Four" companies in that country or is moving on yearly contracts into consuming channels. The "Big Four" are utilizing their crude output for refining in their own plants or refineries of affiliated companies.

### Petroleum Exports

Export movement of refined petroleum products through the local port fell off somewhat during the week ended November 29, after the exceptionally heavy shipments of the preceding week. Demand, however, was still along fairly broad lines and considerable business was reported booked for shipment after the turn of the year. Buyers were believed to be holding off the spot market in the belief that weaker interests among the refiners confronted with the necessity of converting some of their surplus stocks into cash to bolster up their year-end financial statements, would cut prices radically on some products to ac-

complish this aim. While the market has been rather well liquidated on many of the more important products, it is likely that the waiting policy of export operators will bear fruit in some instances.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

| | Week ended | | |
|---|---|---|---|
| | Nov. 29 | Nov. 22 | Nov. 15 |
| Gasoline | 210,000 | 240,000 | 38,000 |
| Naphtha | 360,000 | 575,000 | 350,000 |
| Kerosene | 9,000 | 147,000 | 57,000 |
| Fuel oil | 100,000 | 97,000 | 8,000 |
| Lubricating oil | 3,150,000 | 2,747,000 | 2,640,000 |
| Petroleum, ref. | 155,000 | 1,780,000 | 775,000 |
| | Pounds | | |
| Petrolatum | 155,000 | ..... | ..... |
| Paraffin wax | 1,295,000 | 3,090,000 | 1,680,000 |
| Refined | 80,000 | 635,000 | 675,000 |
| Scale | 470,000 | 425,000 | 130,000 |
| Lubricating grease | 575,000 | 1,245,000 | 1,160,000 |

While exporters of cased gasoline and kerosene have not resumed quoting these products in the open market, it is understood that the cased market on gasoline and kerosene has eased off during the past month in sympathy with the break in the bulk market following the retirement of the export association as a price-making factor at the Gulf.

### Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended November 29 totaled 2,231,000 bbls., a daily average of 318,714 bbls., compared with 2,055,000 bbls., a daily average of 293,571 bbls. for the previous week and a daily average of 264,500 bbls. for the four weeks ended November 29. Details follow:

| | Bbls. of 42 gals. |
|---|---|
| At Atlantic Coast ports— | |
| Baltimore | 143,000 |
| Boston | 813,000 |
| New York | 679,000 |
| Philadelphia | 315,000 |
| Others | 162,000 |
| Total | 2,112,000 |
| Daily average | 301,714 |
| At Gulf Coast ports— | |
| New Orleans and Baton Rouge | 66,000 |
| Tampa | 53,000 |
| Total | 119,000 |
| Daily average | 17,000 |
| At all United States ports— | |
| Total | 2,231,000 |
| Daily average | 318,714 |
| Daily average four weeks | 264,500 |

Distribution of total imports is as follows:

| | |
|---|---|
| Crude | 994,000 |
| Gasoline | 137,000 |
| Gas oil | 9,000 |
| Fuel oil | 1,091,000 |

### California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended November 29 totaled 420,000 bbls., a daily average of 60,000 bbls., compared with 752,000 bbls., a daily average of 107,428 bbls. for the previous week, and a daily average of 76,536 bbls. for the four weeks ended November 29. Details follow:

| | Bbls. of 42 gals. |
|---|---|
| At Atlantic Coast ports— | |
| New York | 188,000 |
| Philadelphia | 232,000 |
| Total | 420,000 |
| Daily average | 60,000 |
| At Gulf Coast ports— | |
| All ports | None |
| At Atlantic and Gulf Coast ports— | |
| Total | 420,000 |
| Daily average | 60,000 |
| Daily average four weeks | 76,536 |

Distribution of total California oil receipts is as follows:

| | |
|---|---|
| Gasoline | 347,000 |
| Fuel oil | 73,000 |

## L. L. FRENCH DIES

Leamon L. French of the Primrose Refining Co., Wichita Falls, Tex., died on November 25 of injuries received about two weeks ago while at work. Pneumonia was contracted after the injuries, and was the cause of his death. He is survived by his widow, one son, two sisters, two brothers and his mother.

## REFINED OIL MOVEMENT CHIEFLY ON CONTRACT

(Continued from Page 178)

for distillate to blend with gas oil is proving quite an item in the distillate trade. Others are inclined to complain of the lack of movement in distillates but there is a good movement, although some may be getting more of the business than others. The demand for the 28-30 zero fuel oil is large and there is some scarcity of this appearing in the better grades. There has been quite some movement in the 26-30 gravity and with a low flash and other characteristics of the good furnace oil it will be hardly distinguishable from the 28-30 to the average consumer. Some are also blending this with a little lighter oil if necessary. In fact, the business of a fully equipped, large dealer in furnace and fuel oils is getting to be very much of a blending proposition and the trick is to blend oils of the same characteristics to produce a fuel which will have all of the good qualities of both and have the proper gravity, flash and fire. There has also been an improvement in the demand for the 18-22 zero, sweet fuel oil from tank wagon distributors who are supplying it to many of the larger type of buildings and some manufacturing plants with a small capacity. The outlook is for at least a steady market with possibilities of price increases when the cold weather sets in to stay, provided it does not do so too late, that is, after the holders of zero fuel oils have become tired of waiting and have closed out whatever surplus stocks they might have had.

### Heavy Fuel Oil

The heavy fuel oil demand is still light and shows little prospects of improvement until after the beginning of the year. Even if a buyer needs oil, which is not often, he is careful to buy only enough for his immediate needs and to calculate these needs by the annual inventory. There is a feeling that the worst is over, that the Christmas trade will be fairly large in the big cities and that after January 1 there will be some improvement that can be discerned without too much effort. It is very likely that stocks of merchandise of all kinds were never of less volume in the retailers' hands. We know how it is with the oil jobber and he has had a good business compared with the most of the retail lines. The empty tanks will have to be filled some time if the jobber is to continue in business just as the empty shelves must be restocked with merchandise if the storekeeper is to hold his trade. When the replenishing process begins and gets under way, there will be a resumption of industrial activity which will mean a better demand for fuel oil and all petroleum products. The demand has been particularly hesitating this week, fuel oil dealers finding that if they had a furnace oil trade they had something to keep them busy but if their business was entirely industrial, they were simply out of luck for the time being. There has been little change in prices and none in the zero oils.

The demand for both motor and industrial lubricants has been slow for immediate use. What business there is is largely being done by refiners who are making contracts with compounders and each other for the various refinery stocks, but this business is slow owing to uncertainty as to prices. The continued decline in prices for the various refinery stocks has made the buyer chary of ordering for the future except at low prices and the seller is also somewhat reluctant to urge a good customer to order freely for future needs, feeling that he may have to revise the prices named in the purchase contract downward. The Mid-Continent prices on bright stocks have been reduced, but Pennsylvania bright stocks are kept at an equal level and in some cases the eastern refiner has been more liberal in his contracts than the western seller.

There have been no general changes in the tank wagon scales in any division. In the Standard Oil Co. (Indiana) territory, the changes have been confined for the most part to unimportant points and occasionally a settlement has been made which has resulted in the resumption of normal prices. There is a general feeling among the dealers that there will be a crude price change shortly and with it an adjustment of the tank wagon market to the new costs. Until then, no general change is expected. The consumption is reported to be fair for the season. Conditions as to cutting of prices are generally the same as a week, or a month ago.

## DRUMRIGHT CHAPTER HAS ENVIABLE RECORD

The Drumright chapter of the American Petroleum Institute Production Division will hold its last session for the year and annual banquet in the dining hall of the First Methodist Church, Drumright, at 7 p.m., December 16, at which meeting R. F. MacArthur, general manager, Barnsdall Oil Co., Tulsa, will be the principal speaker.

The Drumright chapter has an enviable record for attendance at meetings held during the past year and the officers are being congratulated upon the results secured. Secretary E. L. Bell has been especially active and has been supported by the other officers and the interest that has been manifest in these field meetings demonstrates very clearly the progress being made in the industry in the study of its many problems.

This meeting will conclude the term of the 1930 officers and the nominations for officers for the ensuing year will be presented at the annual meeting.

The banquet is to be a stag affair and everyone interested is invited and for $1 all are guaranteed a good meal with plenty of entertainment and it is hoped that a record crowd will be on hand. To permit the committee to make plans to accommodate those who will attend it is requested that tickets be secured from E. L. Bell, secretary, P. O. Box 124, Drumright, Okla., before December 10.

### WORLD PETROLEUM PRODUCTION

In Thousands of Barrels

| | | 1930 | 1929 | 1928 |
|---|---|---|---|---|
| 1. | United States | 937,000 | 1,006,000 | 901,474 |
| 2. | Venezuela | 139,000 | 137,000 | 105,749 |
| 3. | Russia | 126,000 | 103,000 | 87,800 |
| 4. | Persia | 44,000 | 45,250 | 43,461 |
| 5. | Mexico | 41,000 | 44,689 | 50,151 |
| 6. | Rumania | 41,000 | 34,930 | 30,773 |
| 7. | Dutch East Indies | 38,000 | 37,924 | 32,118 |
| 8. | Colombia | 20,000 | 20,385 | 19,897 |
| 9. | Peru | 13,000 | 13,404 | 12,006 |
| 10. | Trinidad | 9,200 | 8,810 | 7,684 |
| 11. | Argentina | 9,000 | 8,800 | 9,070 |
| 12. | India | 7,200 | 8,470 | 8,741 |
| 13. | Sarawak | 4,700 | 5,277 | 5,223 |
| 14. | Poland | 4,500 | 4,953 | 5,493 |
| 15. | Japan | 2,000 | 2,010 | 1,944 |
| 16. | Egypt | 1,800 | 1,866 | 1,842 |
| 17. | Ecuador | 1,500 | 1,351 | 1,084 |
| 18. | Canada | 1,300 | 1,133 | 624 |
| 19. | Sakhalin | 1,300 | 1,160 | 677 |
| 20. | Germany | 1,000 | 711 | 630 |
| 21. | Iraq | | 798 | 713 |
| 22. | France | | 516 | 512 |
| 23. | Czechoslovakia | 1,300 | 93 | 94 |
| 24. | Italy | | 44 | 46 |
| 25. | Others | | 30 | 24 |
| | | 1,444,000 | 1,488,604 | 1,327,830 |

## PRAIRIE SHIPMENTS IN NOVEMBER HIT NEW LOW

The Prairie Pipe Line Co. delivered to refiners in November a total of 2,651,865.59 bbls., a daily average of 88,395.52 bbls. In October the company's deliveries averaged 91,511 bbls. per day. The Prairie Pipe Line Co.'s shipments for the first 11 months of this year were as follows:

| | Daily | Month |
|---|---|---|
| January | 201,859 | 6,257,644 |
| February | 194,041 | 5,433,144 |
| March | 197,244 | 6,114,572 |
| April | 185,846 | 5,575,389 |
| May | 183,095 | 5,675,941 |
| June | 191,707 | 5,751,206 |
| July | 155,200 | 4,811,200 |
| August | 171,769 | 5,324,835 |
| September | 141,553 | 4,246,592 |
| October | 97,285 | 3,015,849 |
| November | 88,396 | 2,651,866 |
| Total 11 mo. | ..... | 54,858,238 |
| Daily av. 11 mo. | 164,246 | ..... |

The construction of their own lines northward by companies that had been shipping oil through Prairie lines, diverted a considerable volume of crude, added to which other shippers which had been using Prairie lines were attracted to the new pipe lines, and customers that retained their connections with the Prairie reduced their crude runs to stills, which cut off a sizable volume of business, making it necessary for the Prairie Oil & Gas Co. to reduce its purchases. Prairie pipe line shipments in December are expected to be smaller than in November. Its total business for the year indicates that the Prairie continued, to be on an average, the largest transporter of crude in the world.

In 1929 the Prairie Pipe Line Co. delivered to refiners an average of 205,202 bbls. per day, its banner month having been July of that year when it averaged 227,364 bbls. per day.

## COMMISSION REJECTS PRORATION PROTEST

Applications of the Century Petroleum Corp., Oils, Inc., and C. C. Julian Oil & Royalty Co. to set aside the state oil proration order were denied by the Oklahoma Corporation Commission after a brief hearing.

The companies gave notice of appeal.

Attacking the proration system, R. S. Randerson, president of the Century company testified he had been forced to reject contracts for sale of 25,000,000 bbls. of oil because of curtailment and that his company would be forced out of business unless the lid were lifted from the Oklahoma City Field.

With many of his 3,000 stockholders in financial difficulties and unable to realize on their investments, Randerson said he was unable to produce from the company's several wells in the field here and could not drill on valuable leases. His expenses, he said, amount to about $1,000 daily while, due to proration, he has no income. He already has contracted to furnish one company 1,000,000 bbls. of oil, he testified.

Witnesses for Oils, Inc., testified they could obtain a market for considerable quantities of oil, but due to proration, they were unable to obtain it.

## SOUTH AFRICAN IMPORTS GROW

Imports of refined petroleum into South Africa during 1929 showed substantial gains over 1928 totals. Imports of principal products for the two years were as follows:

| | 1929 (bbls.) | 1928 (bbls.) |
|---|---|---|
| Gasoline | 1,989,800 | 1,403,052 |
| Kerosene | 564,411 | 403,471 |
| Lubricating oil | 175,462 | 139,451 |
| Fuel oil | 372,717 | 328,042 |

In addition to the foregoing, South Africa during 1929 imported 6,694,328 pounds of grease, 25,974,390 pounds of paraffin wax, 411,348 pounds of petrolatum and 20,490 metric tons of asphalt.

The United States supplied 1,024,931 bbls. of South Africa's total gasoline imports last year, with 832,660 bbls. coming from the Dutch East Indies and 129,597 bbls. from Russia.

# Manufacture of Natural Gasoline

## Car Designer Can Solve Vapor Lock Gasoline Problem

The car designer can materially aid in solving the vapor lock problem in motor fuels according to Dr. O. C. Bridgeman, of the Bureau of Standards, who discussed ideal characteristics of gasoline before the Philadelphia section of the Society of Automotive Engineers recently. Doctor Bridgeman's discussion is of particular interest to natural gasoline manufacturers for the reason that the wider use of their product in blending for motor fuels, has been retarded by the fact that many cars are so designed that the gasoline in the fuel line is preheated to the point where it causes vapor lock.

"The essential properties that a gasoline must possess," said Doctor Bridgeman, "are ability to give easy starting, rapid acceleration, good distribution, and low dilution of the crankcase oil, together with noncorrosiveness from the presence of sulphur, lack of tendency to vapor-lock, high antiknock value, and lack of gum-forming constituents. An ideal fuel would be one which fulfills these requirements completely, but some of the requirements are at variance with others, so the commercial product must be a compromise.

"The gasolines available today to motorists represent each refiner's attempt to balance the varying requirements of present day automobile engines and an economic use of the stocks and crudes available. It can be seen, moreover, that no one specified gasoline can best meet the requirements of all cars. Variations in design necessitate differences in fuels to produce optimum performance with each. The oil refiner and the automobile engineer are working more closely together today than ever before to so modify fuels and engine design that a more generally satisfactory matching of car and fuel will result.

### Engine Designer Can Help

"When the car designer will so lay out his fuel system that gasoline temperatures of 200° F. as have been observed at times, are impossible, the problems of the refiner will be reduced and the satisfaction of the car owner increased. No reason exists why fuel systems cannot be so designed that the maximum temperature of the gasoline in the system will not rise more than 30 degrees above the temperature of the atmosphere. With all cars meeting this condition, the conflict between ease of starting and vapor lock will be minimized.

"Improvements are also possible to a lesser degree in manifold design and its relation to distribution of the fuel mixture. A parallel case is in a general improvement of the combustion chamber design so that higher compression ratios can be employed without necessitating gasolines of abnormally high antiknock value. There are at present on the market cars of high compression ratios which do not require fuel of as high an antiknock value as do other cars of lower compression ratios, indicating the importance of combustion chamber design."

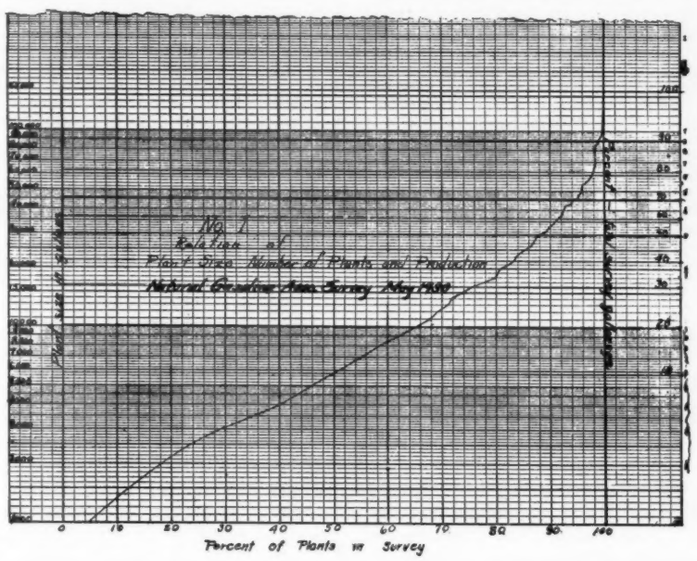
### NEW BUTANE-AIR PLANT

The Natural Gas Corp. of America last week started furnishing gas for the town of Suison-Fairfield in California. This is the fourth gas distributing system to be opened in California towns by the Natural Gas Corp.

The corporation installed a pipe line distributing system throughout the town. The gas is obtained from a butane-air plant similar to that which has been installed in several West Coast towns.

## TEN PER CENT OF PLANTS SUPPLIES HALF OF NATURAL GASOLINE USED

Only 10 per cent of the natural gasoline production now comes from 50 per cent of the number of natural gasoline plants in the United States, according to a survey made by the Natural Gasoline Association of America. A chart prepared by G. M. Davidson, general superintendent of plants for the Empire Oil & Refining Co., shows the relation between the number of plants, plant capacities and daily production. This graph was prepared from information contained in questionnaires returned to the association representing 260 plants located in nine states. The combined production of these plants is approximately 3,000,000 gallons daily, or about 50 per cent of the total production in the United States.


No. 1
Relation of
Plant Size, Number of Plants, and Production
Natural Gasoline Assn. Survey May 1930
Percent of Plants in Survey

It is estimated that there are now approximately 1,100 plants in the United States with a total capacity slightly in excess of 10,000,000 gallons. While the survey includes less than 50 per cent of the plants at present, the returns are no doubt representative. The trend toward larger units is definitely shown both by the results of the survey and reports of the plants having been built during the past few years.

Quantity production is recognized as a vital factor in decreasing production costs to meet the ever-increasing intensity of competition. The newer fields, represented by Seminole, Santa Fe Springs, Long Beach and Oklahoma City, include only what might be termed "large plants." This trend has been brought about by many factors in addition to the advantage of lower unit operating costs as mentioned previously. Most of these fields necessitate drilling to very low depths to reach the oil and gas. The expense of developing the newer fields has limited the number of individuals and companies from operating there. Because of the immensity of the undertaking, those participating have protected themselves by leasing as much of the surrounding land as is available before going ahead with the development work.

Then as wells are brought in, long gathering lines are used to connect up these wells and the gas is led to a large centralized gasoline plant. Those producers who are not a part of an integrated company often find it advantageous to sell their gas to some natural gasoline manufacturer who already has a plant in the field. This is particularly true if it would be necessary to establish a sales organization.

## GENERAL INCREASE SHOWN IN PRODUCTION DURING OCTOBER

The production of natural gasoline, after remaining stationary during September, increased materially in October. Total production amounted to 181,700,000 gallons, or a daily average of 5,830,000 gallons. This represents an increase over the daily average of September of 150,000 gallons but is 790,000 gallons below the daily average of October, 1929.

The most noteworthy increases in production in October were recorded in the Appalachian district, where the demand for natural gas showed the usual seasonal increase, and in the Oklahoma City Field. Stocks of natural gasoline held by plant operators on October 31 amounted to 23,481,000 gallons. This compares with 22,429,000 gallons on hand a month ago and 20,589,000 gallons on hand a year ago. Blending at natural gasoline plants was practically unchanged from September:

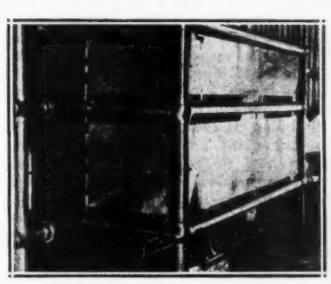
(Thousands of gallons)

| | Natural gasoline: Production | | | | Natural gasoline: Stocks at end of month | | Blended motor fuel Oct., 1930 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Oct., 1930 | Sept., 1930 | Oct., 1929 | Jan.-Oct., 1930 | Oct., 1930 | Sept., 1930 | Natural gasoline used | Naphtha or other oils used | Stocks end of month |
| Appalachian | 6,900 | 4,700 | 8,900 | 72,200 | 2,597 | 1,972 | 86 | 118 | 219 |
| Ill., Ky., etc. | 1,000 | 800 | 1,300 | 10,200 | 207 | 195 | 1 | 1 | 4 |
| Oklahoma | 46,600 | 44,800 | 59,400 | 495,700 | 9,258 | 9,123 | 167 | 145 | 91 |
| Oklahoma City | 4,200 | 3,800 | (*) | 29,100 | 924 | 843 | 32 | 3 | 8 |
| Osage County | 6,300 | 6,300 | 7,600 | 63,200 | 2,474 | 2,475 | 2 | 3 | 4 |
| Seminole, etc. | 18,300 | 18,000 | 30,400 | 221,200 | 2,290 | 1,759 | 10 | 10 | 21 |
| Rest of state | 17,800 | 16,700 | 21,400 | 182,200 | 3,570 | 4,046 | 123 | 129 | 58 |
| Kansas | 2,900 | 2,300 | 2,800 | 26,800 | 709 | 872 | 5 | 1 | 5 |
| Texas | 43,600 | 41,700 | 40,700 | 402,900 | 7,390 | 7,104 | 248 | 412 | 174 |
| Panhandle | 21,700 | 21,600 | 19,300 | 205,000 | 3,720 | 3,038 | 49 | 62 | 26 |
| North Texas | 3,600 | 3,400 | 3,900 | 36,100 | 712 | 631 | 64 | 62 | 33 |
| West Central | 12,800 | 12,100 | 13,800 | 123,200 | 2,192 | 2,957 | 97 | 247 | 86 |
| Rest of state | 5,500 | 4,600 | 3,700 | 38,600 | 766 | 478 | 38 | 41 | 29 |
| Louisiana | 5,800 | 5,300 | 6,300 | 60,800 | 808 | 626 | 8 | 5 | 7 |
| Arkansas | 2,700 | 2,600 | 2,900 | 26,600 | 329 | 278 | 222 | 203 | 18 |
| Rocky Mountain | 5,100 | 4,800 | 4,400 | 44,300 | 733 | 578 | ... | ... | ... |
| California | 67,100 | 64,300 | 79,600 | 679,100 | 1,450 | 1,721 | ... | ... | ... |
| Long Beach | 14,800 | 14,300 | 20,100 | 144,600 | .... | .... | ... | ... | ... |
| Ventura Ave. | 5,000 | 4,700 | 7,100 | 50,000 | .... | .... | ... | ... | ... |
| Seal Beach | 1,800 | 1,900 | 4,300 | 23,300 | .... | .... | ... | ... | ... |
| Huntington Beach. | 2,500 | 2,500 | 3,700 | 27,900 | .... | .... | ... | ... | ... |
| Santa Fe Springs.. | 15,800 | 15,400 | 26,200 | 176,300 | .... | .... | ... | ... | ... |
| Rest of state | 27,200 | 25,500 | 18,200 | 257,000 | .... | .... | ... | ... | ... |
| Total | 181,700 | 171,300 | 206,300 | 1,818,600 | 23,481 | 22,429 | 737 | 885 | 518 |
| Daily average | 5,860 | 5,710 | 6,650 | 5,980 | .... | .... | 24 | 29 | ... |
| Total (thousands of bbls.) | 4,326 | 4,079 | 4,912 | 43,300 | 559 | 534 | 18 | 21 | 12 |
| Daily average | 140 | 136 | 158 | 142 | .... | .... | ... | ... | ... |

*Included under "Rest of state."
Report compiled by Bureau of Mines.

## MADE ADEQUATELY SAFE IN SIMPLE NEAT MANNER

The accompanying picture shows how an operator provided for adequate protection in one of the natural gasoline plants of the Standard Oil Co. of California after it was found that the railing originally installed did not insure adequate protection. The job required a very small expenditure and presents a neat appearance. The manner of filling in the space between the rails and posts is clearly shown in the picture.



Heavy galvanized sheeting was cut to the required size and these are suspended and held along the sides by bolts, the plain ends of which have been flattened and riveted to the plate. These bolts pass through holes drilled through the railing and the sheeting is adjusted and pulled tight by drawing up nuts on the bolts.

### TEXAS BUYS PLANT

The Texas Company, which has a natural gasoline plant a short distance northwest of Electra in western Wichita County, Texas, has purchased the Red River Oil Co.'s natural gasoline plant.

# Brief Items for Petroleum Refiners

## Trinidad Company Expands Marketing And Refinery Unit

NEW YORK, Dec. 6.—Trinidad Leaseholds, Ltd., previously operating as a producing and refining company in Trinidad, has integrated its operations and entered the British market as a distributor of motor fuel through the introduction of its "Regent" gasoline, F. R. Phillips, chairman, reported at the seventeenth annual meeting held in London last week.

Up to the middle of this year, the report said, the company had disposed of its gasoline output in bulk, with principal shippings going to the United States. As a result of the unfavorable gasoline market in this country, directors of Trinidad Leaseholds, Ltd., decided to enter upon direct marketing, and took over the business of Burt, Boulton & Haywood, Ltd., independent British marketers.

Up to last month, the report stated, the company had marketed gasoline taken over as part of the stocks of Burt, Boulton & Haywood, Ltd., but supplies of motor fuel from the company's Trinidad refinery are now moving to Great Britain and are taking care of the company's distributive requirements. "Regent" gasoline is being marketed by England by Trinidad Leaseholds under the No. 1 and No. 3 grades, both of which are said to compare favorably with other gasolines obtainable. In fact, the Trinidad product, the company's report says, is superior to many other brands on the British market because of its unusually high antiknock value.

The company has also broadened its marketing operations in the West Indies, and has increased its storage and distributing facilities in Jamacia, where bulk stocks of gasoline, kerosene, fuel and Diesel oils are being carried.

Refinery facilities have also been increased during the past year, throughput for the year just ended totaling 962,566 tons, an increase of 35,136 tons over that of the previous year, establishing a new high record for the company. The company's plant at Point-a-Pierre has been enlarged by the completion of No. 4 refinery, which has been placed in successful operation. Under normal conditions, the report said, the company's entire refining operations could be handled by the Nos. 3 and 4 refinery units at Point-a-Pierre, which are of modern design.

Trinidad Leaseholds completed No. 2 cracking plant at its Point-a-Pierre refinery late in September. This plant, which consists of two of the latest type Dubbs units, is just going into operation.

The company's development program, undertaken several years ago, has been practically completed, Chairman Phillips said. The sales of the company for the fiscal year just ended, he said, while approximating in volume those of the previous year, showed a substantial reduction in the per ton price realized. The drop in sales revenue was due solely to continued world overproduction, particularly in the United States, where the company formerly marketed a large part of its gasoline production.

### ALEXANDER OPENS OFFICE

C. M. Alexander, formerly general manager for the Imperial Refining Co., has opened an engineering consulting office in the Atlas Life Building in Tulsa. His long past experience in the design and operation of refineries and natural gasoline plants prompted him to take up this work after resigning from his former connections November 1.

## URGE NEBRASKA JOBBERS TO GIVE FULL SUPPORT TO CODE OF ETHICS

OMAHA, Nebr., Dec. 5.—The tenth annual convention of the Nebraska Independent Oil Men's Association held in Omaha December 2, 3 and 4 proved to be the largest attended of any previous convention.

The guest speaker of the convention was Honorable James A. Emery, general counsel of the National Manufacturers Association, Washington, D. C. He chose for his subject, "The Trade Associations and the Antitrust Laws," and clearly traced the growth of business and its relief to the Government from the Sherman Act, the first antitrust law, and the establishment of the trade practice conferences and of federal trade commissions. He pointed out that trade associations are the instrumentalities through which self-government is to be made effective. It offers a far better remedy for thoughtful and conscientious men than the centralized control of federal boards or bureaus.

"There was a time in the not distant past when public authority indicated a doubt as to whether or not a trade association was legal. That time is fortunately past and the rules laid down by the federal commission clearly state the boundaries through which associations can function.

"These rules encourage every industry to set up self-government and establish commendable customs which will sternly confront any threatened abuse of invaluable co-operation."

He stressed the fact that the National Code of Practices for Marketing Refined Petroleum Products authorized by the Federal Trade Commission was a great step forward for the petroleum industry to control itself. He urged that every self-respecting member of the industry should be whole-hearted for this new growth and new era of marketing. He said it should mean the growth of the common law of industry which will make constantly less necessary the intervention of government to prevent or regulate abuses.

Thursday morning Secretary C. M. Sutherland outlined through a report on a petroleum questionnaire, which was sent to every jobber in the State, "What's

(Continued on Page 190)

## Refiners Object to Lower Gasoline Rail Rates as Proposed

Unless all railroad rates on gasoline are reduced, the lower schedules proposed by the Frisco and Katy Railroads late in October, as a means of discouraging the building of gasoline pipe lines, promises to meet general opposition among refiners. This was the keynote of the meeting of shippers and carriers in St. Louis, December 15, where the attendance was in excess of 100.

Late in October, it will be remembered, the two roads issued a proposal to establish on gasoline only, a rate of 18 cents to Kansas City, 22 cents to St. Louis and 27½ cents to Chicago from a limited number of points including Tulsa, Bristow, Sapulpa, Enid, Muskogee, Cushing, Cleveland, Coffeyville, etc. It was also understood that the railroads would allow no mileage on loaded cars.

This proposal represents a net savings of $22.32 on each 8,000-gallon car of gasoline shipped from Tulsa to Chicago, as an example. At first this savings appeared attractive but the meeting brought out many unfavorable factors, which apparently greatly outweighed any permanent advantages; that only a complete revision of rates over the entire United States would meet the approval of refiners and of course, such a move would likely be opposed by carriers outside of the southwestern area.

The St. Louis meeting was intended principally to bring out the views of the refiners and marketers, and other carriers, and neither the Katy nor the Frisco attempted to answer the objections raised. As the meeting ended it seemed apparent that considerable further opposition will be developed before any such rates as proposed could be put into effect.

In making the original proposal, the railroads evidently had in mind discouraging the building of the Great Lakes gasoline pipe line and other gasoline lines which might be proposed in the future.

(Continued on Page 190)

### SUPPLY SPANISH MONOPOLY

NEW YORK, Dec. 6.—Rumania will replace Russia as the principal supplier of petroleum products to the Spanish Petroleum Monopoly under the terms of a contract just concluded. The contract, closed by "Pallas," the Rumanian exporting company, calls for 300,000 tons of refined products during 1931. This quantity, in addition to a contract for 75,000 tons of refined oils already held by "Pallas" for 1931 delivery to Spain, will give Rumania close to 57 per cent of the entire Spanish business. The Soviet Oil Trust formerly handled this business. While details of the prices involved in the Rumanian contract are not known here, it is reported that the business was booked at approximately 10 per cent under United States Gulf prices.

The 300,000-ton contract for 1931 includes the following quantities: Gasoline, 150,000 tons; fuel oil, 100,000 tons; gas oil, 35,000 tons; lubricating oil, 10,000 tons; and kerosene, 5,000 tons.

### APPOINTED EASTERN MANAGER

D. R. Frizzell, refinery superintendent for Macmillan Petroleum Products Co., at El Dorado, Ark., for the last several years, has been made general manager of the eastern division embracing all territory east of the Rockies in which the company is interested. At present the company is operating plants at El Dorado and Norphlet, Ark., and Borger, Tex., with sales offices in El Dorado and Chicago.

## MAY BUILD NEW PLANT IN LOMPOC, CALIF. POOL

LOS ANGELES, Calif., Dec. 6.—The Vaqueros Major Oil Co. is considering the construction of a skimming plant in the Lompoc district. The company has developed considerable production on its lease in that territory and has not been able to secure a satisfactory outlet. The plant, if built, will have a capacity of 1,000 bbls. daily.

The O. C. Fields Gasoline Co. is reported to have contracted for the casinghead gas in the Lompoc district. The company operates natural gasoline plants in other California fields.

### CLOSE NAVIGATION SEASON

The last boatload of crude oil for the 1930 navigation season left the Muskegon harbor Saturday, December 6, destined for Indiana Harbor, the port for Whiting, Ind., refineries of the Standard Oil Co. of Indiana. The crude was transported in the Standard Barge "C" towed from Muskegon to Indiana Harbor by the company's tanker, "Cowan."

The Dixie Pipe Line Co., operating subsidiary of the Standard of Indiana in the Muskegon Field, will continue to run crude into storage here until the 1931 navigation season opens next spring. It is estimated that the company has enough storage in the Standard's 80,000-bbl. tank and three 1,500-bbl. tanks to handle its present pipe line run from now until about April 1 when boat shipments can be resumed. Average daily run of the Dixie company is now about 700 bbls. and is expected to decline to about 500 bbls. before the next four winter months have passed.

### DEER & SONS TO CITIES SERVICE

CHICAGO, Dec. 6.—The Cities Service Oil Co. has bought the well-known jobbing business of George W. Deer & Sons, Crawfordsville, Ind. This is one of the oldest independent jobbing concerns in the Middle West. It operates seven bulk stations and five service stations besides 75 leased stations which it does not own. The Cities Service Products will be handled. Paul Deer has been treasurer of the Independent Oil Men of America.

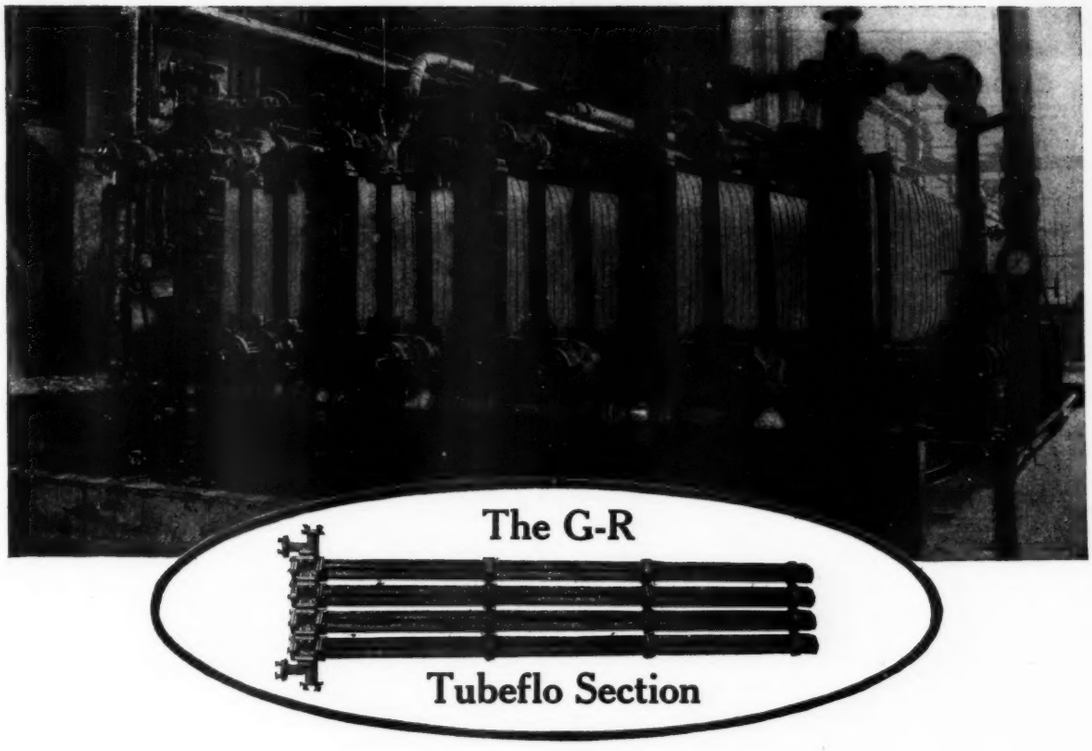
## PHILLIPS PETROLEUM ENTERS CHICAGO FIELD

CHICAGO, Dec. 5.—The Phillips Petroleum Co. today made public announcement of its entry into the distributing business in Chicago. The company lists 93 stations which it owns or at least controls. These are all established oil stations and give the Phillips people a wide distribution over the best parts of the city from a standpoint of gasoline consumption. The products which will be featured are the "Phillips 66" and "Phillips Ethyl." The Phillips Co. claims to be the "world's largest producers of natural high gravity gasoline." The claims made to the consumer for the "Phillips 66" are that it is instant starting, quick pickup, better mileage and less crankcase dilution. R. N. Mullin is in charge of the operations of the Phillips Petroleum Co. in this district. He states that the company has been quietly buying up stations in this city for some time but that hitherto they have made no announcement of change of ownership and that in most stations the help employed did not know of the change. In addition to the "Phillips 66," much stress will be placed on the "Phillips Ethyl," for which the claim is made that it is the superior for winter driving of any motor fuel offered to motorists.

## WHITE EAGLE ENLARGING AUGUSTA, KANS. REFINERY

The White Eagle Oil Corp. is enlarging and making improvements at its Augusta, Kans., refinery. Additional crude oil distillation and cracking equipment is being installed, part of which will replace units which have been in operation for several years. It is stated that approximately $2,000,000 will be spent in the enlargement program.

Other phases of the plant's equipment are being enlarged to take care of the increased capacity. The present capacity of the plant is 10,000 bbls. daily and this will be increased to 15,000 bbls. E. B. Badger & Sons Co. and the M. W. Kellogg Co. have contracts for the construction of their equipment at the refinery. Officials of the corporation have announced that they have already arranged for all the additional employes needed for the construction work.




# Heavy still bottoms to dirty crude—

## .....Efficient heat transfer with G-R Tubeflo Sections

THIS service—one of the most difficult for maintenance of efficient heat exchange because of the character of the fluids—is effectively performed by the unique G-R Tubeflo Section. The several advantages that make the G-R Tubeflo Section peculiarly fitted for this service include a special heat and corrosion resistant cast metal, straight tubes to promote ease of cleaning, readily removable heads and return bends for accessibility, counter-current flow for efficient transfer of heat, and exceptional compactness.

In the typical installation illustrated above, note the small space occupied by twenty of these sections, the simplified piping with convenient method of control permitting bypassing by the G-R Three-Way Valves on each bank, and the regular contour which facilitates application of insulation for conserving heat. This installation requires cleaning only once in nine months whereas the shell and tube units, which G-R Tubeflo Sections replaced, could not be kept in service over two weeks because of clogging with coke.

THE GRISCOM-RUSSELL CO.
285 Madison Avenue, New York
*Branch Offices in 27 Cities*

# Griscom-Russell

## Heat Transfer Apparatus

# REFINERY AND CRUDE PRICES

**Quotations on refined products are for interstate or export movement unless otherwise noted.**

## GASOLINE AND NAPHTHA

| OKLAHOMA (Group 3)— | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| 50-52 450 endpoint | .04¼ | | .04¼ | .04½ | .04½ | .04¾ |
| 56-58 450 endpoint | .04 | .04¼ | .04¼ | .04½ | .04½ | |
| *58-60 437 endpoint (U. S. Motor) | .0488 | | .0498 | | .0513 | |
| *60-62 437 endpoint | †.04¾ | .05 | †.04¾ | .05¼ | †.04¾ | .05¼ |
| *60-62 400 endpoint | †.05¼ | .05½ | †.05¼ | .05½ | .055 | |
| *64-66 375 endpoint | .065 | | .065 | | †.05¼ | .05⅝ |
| 68-70 360 endpoint | .05½ | .05¾ | .05½ | .05¾ | .05¾ | |
| 64-66 437 endpoint (blend) | .04¼ | .04½ | .04¾ | .05¼ | .04¾ | .05¼ |

*Weighted average prices December 8, 1 and November 24 as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

| NORTH TEXAS— | | | | | | |
|---|---|---|---|---|---|---|
| 50-52 450 endpoint | .04 | | .04¼ | .04½ | .04½ | |
| 58-60 450 endpoint | .04 | | .04⅛ | .04½ | .04¼ | .04¾ |
| 58-60 437 endpoint (U. S. Motor) | .04 | .04½ | .04¼ | .04½ | .04½ | .04¾ |
| 60-62 400 endpoint | .04¼ | .04½ | .04⅜ | .04¾ | .04¾ | .05 |
| 64-66 390 endpoint | .04⅝ | .04¾ | .04¾ | .05 | .04⅞ | .05 |
| 64-66 375 endpoint | .04⅜ | .05 | .05⅛ | .05½ | .05¼ | .05½ |
| 68-70 360 endpoint | .05½ | | .05¾ | .06 | .06 | |
| 64-66 437 endpoint (blend) | .04¼ | .04½ | .04½ | .04¾ | .04¾ | |
| *NORTH LOUISIANA— | | | | | | |
| 58-60 437 endpoint (U. S. Motor) | .05¼ | .05½ | .05¾ | .06¼ | .06¼ | .06½ |
| *ARKANSAS— | | | | | | |
| 58-60 437 endpoint (U. S. Motor) | .05 | .05¼ | .05¾ | .06¼ | .06¼ | .06½ |
| PENNSYLVANIA— | | | | | | |
| 52-54 Naphtha | .06¼ | | .06½ | | .06¾ | |
| 54-56 Naphtha | .06½ | | .06½ | | .06¾ | |
| 58-60 Gasoline | .06½ | | .06½ | | .06¾ | |
| 60 Gasoline | .06¾ | | .06¾ | | .06¾ | .07 |
| 62 Gasoline | .07 | | .07 | | .07 | |
| 64 Gasoline | .07¼ | | .07¼ | | .07½ | |
| 68-70 350 endpoint gasoline | .08 | .08½ | .08 | .08½ | .08½ | |
| CALIFORNIA— | | | | | | |
| †54-58 437 endpoint (U. S. Motor) domestic | .07½ | .11 | .07½ | .11 | .08 | .11 |
| †58-62 400 endpoint domestic gasoline | .09 | .11 | .09 | .11 | .09½ | .11½ |
| *CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| 50-52 450 endpoint (Naphtha) | .04½ | .04¾ | .04½ | .04¾ | .04½ | .04¾ |
| 56-58 450 endpoint | .04¼ | .04½ | .04⅜ | .04⅝ | .04½ | .04¾ |
| 58-60 437 endpoint (U. S. Motor) | .04¼ | .04¾ | .04⅜ | .04¾ | .04½ | .05 |
| 60-62 400 endpoint | .04½ | .05 | .04⅝ | .05 | .04¾ | .05¼ |
| 64-66 375 endpoint | .05¼ | .05¾ | .05½ | .06 | .05¼ | .05¾ |
| 64-66 437 endpoint (blend) | .04¼ | .04¾ | .04½ | .05 | .04⅝ | .05 |
| 68-70 360 endpoint | .05¾ | .06 | .06 | .06¼ | .06 | .06¼ |
| GULF COAST (Export)— | | | | | | |
| 58-60 U. S. Motor | .05¼ | .05½ | .05½ | .05¾ | .05½ | .06 |
| 60-62 400 endpoint | .05¾ | .06¼ | .06 | .06½ | .06 | .06¾ |
| 61-63 390 endpoint | .06 | .06¼ | .06¼ | .06¾ | .06¼ | .07 |
| 64-66 375 endpoint | .06¼ | .06½ | .06½ | .06¾ | .06⅝ | .06¾ |

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption.

## NATURAL GASOLINE

| OKLAHOMA (Group 3)— | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| Grade A, 72-79.9, 375 e.p., rec. 90% | .04 | .04¼ | .04¼ | .04½ | .04⅝ | .04¾ |
| Grade AA, 80-87.9, 375 e.p., rec. 90% | .03¾ | .04 | .04 | | .04⅜ | .04½ |
| Grade B, 76-83.9, 375 e.p., rec. 85% | .03⅝ | .03¾ | .03¾ | .04 | .04 | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .03⅝ | .03¾ | .03¾ | | .04 | |
| Grade C, 80-92, 375 e.p., rec. 78% | .03½ | | .03¾ | | .04 | |
| NORTH TEXAS— | | | | | | |
| Grade A, 72-79.9, 375 e.p., rec. 90% | .04 | .04¼ | .04¼ | .04½ | .04⅝ | |
| Grade AA, 80-87.9, 375 e.p., rec. 90% | .03⅞ | .04 | .04 | | .04½ | |
| Grade B, 76-83.9, 375 e.p., rec. 85% | .03⅝ | .03¾ | .03¾ | .04 | .04 | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .03⅝ | | .03¾ | | .04 | |
| Grade C, 80-92, 375 e.p., rec. 78% | .03½ | | .03¾ | | .04 | |
| NORTH LOUISIANA— | | | | | | |
| Grade AA, 80-87, 375 e.p., rec. 90% | .04¼ | | .04½ | | .04¾ | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .04 | | .04 | | .04⅛ | |
| Grade C, 80-92, 375 e.p., rec. 78% | .03¾ | | .04 | | .04 | |
| CALIFORNIA— | | | | | | |
| 75-78 375-390 endpoint | .06 | .07¼ | .06¼ | .07¼ | .06¾ | .07¾ |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| Grade A, 72-79.9, 375 e.p., rec. 90% | .04 | .04¼ | .04¼ | | .04⅝ | .04¾ |
| Grade AA, 80-87.9, 375 e.p., rec. 90% | .03⅞ | .04 | .04 | | .04⅜ | |
| Grade BB, 84-92, 375 e.p., rec. 85% | .03⅝ | .03¾ | .03¾ | | .04 | |

## BURNING OIL

| OKLAHOMA (Group 3)— | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| 41-43 water white kerosene | .03½ | .03½ | .03½ | .03¾ | .03½ | .03¾ |
| 42-44 water white kerosene | .03¼ | .03¾ | .03¼ | .03¾ | .03⅜ | .03¾ |
| NORTH TEXAS— | | | | | | |
| 41-43 water white kerosene | .03 | .03¼ | .03 | .03¼ | .03 | .03¼ |
| 40-41 water white kerosene | .02⅞ | .03 | .02⅞ | .03 | .02⅞ | .03 |
| *NORTH LOUISIANA— | | | | | | |
| 41-43 water white kerosene | .03¾ | .04 | .04¼ | .04⅜ | .04¼ | .04⅜ |
| *ARKANSAS— | | | | | | |
| 41-43 water white kerosene | .03¾ | .04 | .04¼ | | .04¼ | |
| PENNSYLVANIA— | | | | | | |
| 43 Kerosene prime white | .04⅞ | | .04⅞ | | .04⅞ | |
| 45 Kerosene water white | .05 | .05¼ | .05 | .05¼ | .05 | .05¼ |
| 46 Kerosene water white | .05¼ | .05½ | .05¼ | .05½ | .05¼ | .05½ |
| CALIFORNIA— | | | | | | |
| 38-40 water white Kero. (high burning test) | .05 | .06 | .05 | .06 | .05 | .06 |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| 41-43 water white kerosene | .03 | .03¼ | .03 | .03¼ | .03 | .03¼ |
| 42-44 water white kerosene | .03¼ | .03½ | .03¼ | .03½ | .03¼ | .03½ |
| GULF COAST (Export)— | | | | | | |
| 41-43 prime white | .04 | .04½ | .04½ | .04¾ | .04½ | .04¾ |
| 41-43 water white | .05 | .05½ | .05½ | .05¾ | .05½ | .05¾ |

*Louisiana, Arkansas, Mississippi and East Texas delivery.

## FUEL OIL

| OKLAHOMA (Group 3)— | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| Below 18 gravity Fuel Oil, per bbl. | .40 | .50 | .40 | .45 | .40 | .45 |
| 18-22 Fuel Oil, per bbl. | .50 | .55 | .50 | .55 | .50 | .55 |
| 20-22 Fuel Oil, per bbl. | .50 | .60 | .55 | .60 | .55 | .60 |
| 22-26 Fuel Oil, per bbl. | .60 | .65 | .60 | .65 | .60 | .65 |
| 24-26 Fuel Oil, per bbl. | .65 | .70 | .65 | .70 | .65 | .70 |
| 26-30 Fuel Oil, per bbl. | .70 | .75 | .70 | .75 | .70 | .75 |
| 28-30 Fuel Oil, per bbl. | .80 | .90 | .80 | .90 | .80 | .90 |
| 32-36 Gas Oil (industrial) | .02 | .02¼ | .02⅛ | .02¼ | .02⅛ | .02¼ |
| 32-36 Gas Oil (straw color, high cold test) | .02¼ | .02½ | .02¼ | .02½ | .02¼ | .02½ |
| 32-36 Gas Oil (straw color, low cold test) | .02⅝ | .02⅞ | .02⅝ | .02⅞ | .02⅝ | .02⅞ |
| 36-38 Distillate | .02¾ | .02⅞ | .02¾ | .02⅞ | .02¾ | .02⅞ |
| 38-40 Straw Distillate | .02¾ | .03 | .02¾ | .03¼ | .02¾ | .03¼ |
| NORTH TEXAS— | | | | | | |
| Below 20 gravity Fuel Oil, per bbl. | .35 | .45 | .40 | .50 | .40 | .50 |
| 24-26 Fuel Oil, per bbl. | .50 | .60 | .55 | .65 | .55 | .65 |
| 32-36 Gas Oil (industrial) | .02 | .02¼ | .02 | .02¼ | .02 | .02¼ |
| 38-40 Straw Distillate | .02¾ | .03 | .02¾ | .03 | .02¾ | .03 |
| *NORTH LOUISIANA— | | | | | | |
| 18-20 Fuel Oil, per bbl. | .75 | .80 | .80 | .85 | .80 | .85 |
| 30-32 Gas Oil | .02⅞ | .03 | .03 | .03¼ | .03 | .03¼ |
| *ARKANSAS— | | | | | | |
| 33-36 Distillate | .02¾ | .03 | .02¾ | .03 | .02¾ | .03 |
| 30-32 Gas Oil | .02⅝ | .02¾ | .02¾ | .02⅞ | .02¾ | .02⅞ |
| 16-22 Refinery Fuel Oil, per bbl. | .60 | .65 | .65 | .70 | .65 | .70 |
| GULF COAST (South Texas)— | | | | | | |
| Gas Oil | .03½ | .03¾ | .03½ | .03¾ | .03¾ | |
| Bunker C Fuel (cargo lots), per bbl. | .67½ | .75 | .67½ | .75 | .65 | .67½ |
| Bunker C Fuel (small lots) | .90 | | .90 | | .90 | |
| PENNSYLVANIA— | | | | | | |
| 30-34 Fuel Oil | .03½ | | .03½ | | .03½ | |
| 36-40 Fuel Oil | .03½ | | .03½ | | .03½ | |
| CALIFORNIA— | | | | | | |
| 33-36 Distillate | .02 | .02½ | .02 | .02½ | .02 | .02½ |
| 26-32 Distillate | .01¾ | .02 | .01¾ | .02 | .01¾ | .02 |
| 15-19 Fuel Oil, Bunker (at tidewater), bbl. | .55 | .75 | .60 | .95 | .60 | .95 |
| 15-19 Fuel Oil (cargo lots, at tidewater), bbl. | .50 | .80 | .55 | .85 | .55 | .85 |
| 15-19 Fuel Oil, f.o.b. tank cars | .30 | .55 | .35 | .85 | .40 | .85 |
| 27 plus Diesel, per bbl. | .85 | 1.05 | .85 | 1.05 | .85 | 1.05 |
| CHICAGO DISTRICT (Based on Group 3)— | | | | | | |
| 18-22 Fuel Oil, per bbl. | .60 | .65 | .60 | .65 | .57½ | .62½ |
| 22-26 Fuel Oil, per bbl. | .65 | .70 | .65 | .70 | .62½ | .70 |
| 28-30 Fuel Oil, per bbl. (zero) | .90 | .95 | .90 | .95 | .90 | .95 |
| 32-36 Gas Oil (zero) | .02¼ | .02¾ | .02¼ | .02⅝ | .02¼ | .03⅛ |
| 32-36 Gas Oil (industrial) | .02⅝ | .02⅞ | .02⅝ | .02⅞ | .02½ | .02⅞ |
| 38-40 Straw Distillate | .02¾ | .03 | .02¾ | .03 | .02¾ | .03 |

*Louisiana, Arkansas, Mississippi and East Texas delivery.

## LUBRICATING OIL AND WAX

| OKLAHOMA (Group 3)— | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| 100 vis., 2 color, 20-25 cold test | .05 | .05½ | .05 | .05½ | .05 | .05½ |
| 100 vis., 3 color, 20-25 cold test | .04¾ | .05 | .04¾ | .05 | .04¾ | .05 |
| 150 vis., 3 color, 20-25 cold test | .07 | | .07 | | .07 | |
| 150 vis., 4 color, 20-25 cold test | .06½ | | .06½ | | .06½ | |
| 180 vis., 3 color, 23-28 cold test | .08½ | | .08½ | | .08½ | |
| 180 vis., 4 color, 23-28 cold test | .08 | | .08 | | .08 | |
| 180 vis., 5 color, 23-28 cold test | .07¼ | .07½ | .07¼ | .07½ | .07¼ | .07½ |
| 200 vis., 3 color, 23-28 cold test | .09¾ | .10 | .09¾ | .10 | .09¾ | .10 |
| 200 vis., 4 color, 23-28 cold test | .09½ | | .09½ | | .09½ | |
| 200 vis., 5 color, 23-28 cold test | .09 | | .09 | | .09 | |
| 240 vis., 3 color, 25-30 cold test | .13¼ | .13½ | .13¼ | .13½ | .13¼ | .13½ |
| 240 vis., 4 color, 25-30 cold test | .12¼ | .12½ | .12¼ | .12½ | .12¼ | .12½ |
| 240 vis., 5 color, 25-30 cold test | .11¼ | .11½ | .11¼ | .11½ | .11¼ | .11½ |
| 280 vis., 3 color, 25-30 cold test | .15½ | | .15½ | | .15½ | |
| 280 vis., 4 color, 25-30 cold test | .14½ | | .14½ | | .14½ | |
| 280 vis., 5 color, 25-30 cold test | .13½ | | .13½ | | .13½ | |
| Cylinder Stocks: | | | | | | |
| 600, steam refined, light green | .07 | .08 | .07 | .08 | .07 | .08 |
| 600, steam refined, dark green | .04½ | .05½ | .04½ | .05½ | .04½ | .05½ |
| 190-200 vis., D color, Bright Stocks | .25 | | .25 | | .25 | |
| 150-160 vis., D color, Bright Stocks 0-10 C.T. | .19 | .20 | .19 | .20 | .20 | .21 |
| 150-160 vis., D color, Bright Stocks 10-25 C.T. | .18 | .19 | .18 | .19 | .19 | .20 |
| 150-160 vis., D color, Bright Stocks 25-40 C.T. | .17½ | .18½ | .17½ | .18½ | .18½ | .19½ |
| 150-160 vis., E color, Bright Stocks | .17 | .18 | .17 | .18 | .18 | .19 |
| Waxes: | | | | | | |
| 124-126 White Crude Scale Wax | .02 | .02⅛ | .02 | .02⅛ | .02 | .02⅛ |

All bright stock prices are for domestic movement.

| PENNSYLVANIA— | | | | | | |
|---|---|---|---|---|---|---|
| 34 Neutral | .05½ | .06½ | .05½ | .06½ | .05½ | .06½ |
| 34 Sundebloom | .05½ | | .05½ | | .05½ | |
| 36 Miners' Neutral | .05¾ | | .05¾ | | .05¾ | |
| 150, 3 color | .10¾ | .12¼ | .10¾ | .12¼ | .10¾ | .12¼ |
| 180, 3 color | .15 | .16 | .15 | .16 | .15 | .16 |
| 200, 3 color | .16½ | .17 | .16½ | .17 | .17 | .17½ |
| 220, 3 color | .20 | .21 | .20 | .21 | .21 | .22 |
| 600, steam refined | .09½ | .10½ | .09½ | .10½ | .09½ | .10½ |
| 650, steam refined | .15 | .16 | .15 | .16 | .16 | .17 |
| 600, Pennsylvania Flash | .15½ | .16½ | .15½ | .16½ | .15½ | .16½ |
| 630, Pennsylvania Flash | .23½ | .24½ | .23½ | .24½ | .23½ | .24½ |
| 600, E filtered | .15 | .17 | .15 | .17 | .15 | .17 |
| 600, D filtered | .19 | .20 | .19 | .20 | .19 | .22 |
| Pennsylvania Bright Stocks below 35 C.T. | .20 | .21 | .21 | | .21 | |
| Pennsylvania Bright Stocks above 35 C.T. | .18 | .18½ | .18½ | .19½ | .19 | .20 |
| *122-124 White Crude Scale Wax | .02¼ | .02⅝ | .02¼ | | .02¼ | |
| 124-126 White Crude Scale Wax | .02¼ | .02⅝ | .02¼ | | .02½ | |

*At New York.

| GULF COAST (South Texas)— | | | | | | |
|---|---|---|---|---|---|---|
| 100 vis., 2-2½ color, pale oil | .06¼ | .06½ | .06¼ | .06½ | .06¼ | .06½ |
| 200, vis., 3 color, pale oil | .08½ | .09 | .08½ | .09 | .08½ | .09 |
| 300 vis., 3 color, pale oil | .09¾ | .10 | .09¾ | .10 | .09¾ | .10 |
| 500, vis., 3½ color, pale oil | .11 | .11¼ | .11 | .11¼ | .11 | .11¼ |
| 750 vis., 3½ color, pale oil | .12½ | .12¾ | .12½ | .12¾ | .12½ | .12¾ |
| 1,200 vis., 3½ color, pale oil | .15 | .15¼ | .15 | .15¼ | .15 | .15¼ |
| 2,000 vis., 4 color, pale oil | .16 | .16½ | .16 | .16½ | .16 | .16½ |
| 200 vis., 5-6 color, red oil | .07¾ | .08 | .07¾ | .08 | .07¾ | .08 |
| 300 vis., 5-6 color, red oil | .09 | .09¼ | .09 | .09¼ | .09 | .09¼ |
| 500 vis., 5-6 color, red oil | .10¼ | .10½ | .10¼ | .10½ | .10¼ | .10½ |
| 750 vis., 5-6 color, red oil | .11¾ | .12 | .11¾ | .12 | .11¾ | .12 |

# REFINERY AND CRUDE PRICES

**Quotations on refined products are for interstate or export movement unless otherwise noted.**

| | | | | | | |
|---|---|---|---|---|---|---|
| 1,200 vis., 5-6 color, red oil | .14 | .14½ | .14 | .14½ | .14 | .14½ |
| 2,000 vis., 6 plus color, red oil | .16 | .16¼ | .16 | .16¼ | .16 | .16¼ |
| **CALIFORNIA—** | | | | | | |
| 130 vis., 2½-3 color | .09 | .09½ | .09 | .09½ | .09 | .09½ |
| 200 vis., 2½-3 color | .10 | .10¾ | .10 | .10¾ | .10 | .10¾ |
| 300 vis., 3-3½ color | .10¾ | .11¼ | .10¾ | .11½ | .10¾ | .11½ |
| 350 vis., 3½-4 color | .11½ | .11¾ | .11½ | .11¾ | .11½ | .11¾ |
| 400 vis., 3½-4 color | .12¼ | .12¾ | .12¼ | .12¾ | .12¼ | .12¾ |
| Red Neutral: | | | | | | |
| 200 vis., 4½-5 color | .10 | .10¾ | .10 | .10¾ | .10 | .10¾ |
| 300 vis., 5-6 color | .10¾ | .11¼ | .10¾ | .11¼ | .10¾ | .11¼ |
| 400 vis., 5-6 color | .12 | .12½ | .12 | .12½ | .12 | .12½ |
| 500 vis., 4½-5 color | .13 | .13½ | .13 | .13½ | .13 | .13½ |
| 500 vis., 5-6½ color | .13 | .13¾ | .13 | .13¾ | .13 | .13¾ |
| 600 vis., 6½ plus color | .13½ | .14½ | .13½ | .14½ | .13½ | .14½ |

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

## NEW YORK (BAYONNE) REFINERY PRICES

| | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| Gasoline, U. S. Motor, 58-60, 437 e.p. | .06¼ | .06½ | .06¼ | .07 | .06¾ | .07 |
| Kerosene, water white, 41-43 | .06¼ | .06½ | .06¼ | .06½ | .06 | .06½ |
| *Fuel Oil, Bunker "C," 41-43 | 1.05 | | 1.05 | | 1.05 | |
| †Fuel Oil, Diesel, 28-30, per bbl. | 2.00 | | 2.00 | | 2.00 | |
| Gas Oil, 28 gravity plus | .04¾ | .05¼ | .04¾ | .05¼ | .04¾ | .05¼ |
| 25 pale Paraffin Oil, tank car | .10¼ | | .10¼ | | .10¼ | |
| 28 pale Paraffin Oil, tank car | .07¼ | | .07¼ | | .07¼ | |
| 280 red Paraffin Oil, tank car | .12½ | | .12½ | | .12½ | |
| 250 red Paraffin Oil, tank car | .11½ | | .11½ | | .11½ | |
| 225 red Paraffin Oil, tank car | .10 | | .10 | | .10 | |
| 200 red Paraffin Oil, tank car | .09¼ | | .09¼ | | .09¼ | |
| Domestic heating oil, min. 32 grav., tank car | .04½ | | .04½ | | .04½ | |
| Refined Wax: | | | | | | |
| 120-122 a.m.p., per lb. | .02⅞ | | .02⅞ | | .02⅞ | |
| 125-127 a.m.p., per lb. | .03⅛ | | .03⅛ | | .03⅛ | |
| 130-132 a.m.p., per lb. | .03½ | | .03½ | | .03½ | |
| 133-135 a.m.p., per lb. | .04⅛ | | .04⅛ | | .04⅛ | |
| 135-137 a.m.p., per lb. | .04⅜ | | .04⅜ | | .04⅜ | |
| Petrolatum in barrels, in carload lots, per pound: | | | | | | |
| Dark Green | .01¾ | | .01¾ | | .01¾ | |
| Amber | .03¼ | | .03¼ | | .03¼ | |
| Extra Amber | .03⅜ | | .03⅜ | | .03⅜ | |
| Cream | .06 | | .06 | | .06 | |
| Lily White | .06¾ | | .06¾ | | .06¾ | |
| Snow White | .08 | | .08 | | .08 | |

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents per barrel.

## NEW YORK (BAYONNE) EXPORT PRICES

| | Dec. 9 | Dec. 2 | Nov. 25 |
|---|---|---|---|
| 600, steam refined cylinder stocks, in bbls. | .16½ | .16½ | .16½ |
| 635, steam refined | .18½ | .18½ | .18½ |
| 650, steam refined | .23 | .23 | .23 |
| 600, Pennsylvania Flash | .23½ | .23½ | .23½ |
| 630, Pennsylvania Flash | .29½ | .29½ | .29½ |
| 600, Warren E | .23½ | .23½ | .23½ |
| 600, Oil City E | .22½ | .22½ | .22½ |
| Light 140-150 Bright Stocks | .26 | .26 | .27 |
| Dark 140-150 Bright Stocks | .24 | .24 | .25 |

## LOS ANGELES EXPORT PRICES

| | Dec. 9 | | Dec. 2 | | Nov. 25 | |
|---|---|---|---|---|---|---|
| Kerosene, water white | .04¾ | .06 | .04¾ | .06 | .04¾ | .06 |
| *U. S. Motor Gasoline, 53-55, 437 e.p. | .06 | .07¼ | .06½ | .07½ | .06½ | .07½ |
| *60-62, 400 endpoint gasoline | .07½ | .08¾ | .08 | .09¼ | .08 | .09¼ |

*For coastwise and off-shore shipments.

## CRUDE OIL PRICES

**OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS**

Corsicana heavy (Oct. 28).....$ .75
Other fields.....See gravity table

**TEXAS PANHANDLE**

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

**WEST TEXAS**

Iatan*.....Same as North Texas
Crane-Upton-Crockett, Howard and Glasscock, Mitchell and Ector.....See gravity table, Column 3
Pecos and Winkler.....See gravity table, Column 9
Chalk† (April 10, 1930).....$ .75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

**ARKANSAS-NORTH LOUISIANA**

Smackover (all grades) (Oct. 30, 1930).$ .70
Carterville, Sarepta and Cotton Valley, below 36 gravity.....See gravity table
Bellevue (Oct. 30, 1930).....1.00
Urania (Oct. 30, 1930).....75
Calion, heavy (Oct. 30, 1930).....70
East El Dorado (Oct. 30, 1930).....70
Other fields.....See gravity table

Note—Smackover and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Gulf Refining Co. and Magnolia Petroleum Co. Calion posted by Gulf Refining Co.

**GULF COAST**

Grade A (Oct. 28, 1930)*.....$1.00
Grade B, 25° and upward..See gravity table
Jennings, La. (Oct. 30, 1930)†.....80
Refugio (light).....Same as Grade B
Refugio (heavy) (Oct. 28, 1930)*.....75
Markham (Oct. 25)‡.....85
High Island (Oct. 30, 1930)†.....75

*Humble Oil & Refining Co. †Gulf Refining Co. of Louisiana. ‡Texas Pipe Line Co.

**ROCKY MOUNTAIN STATES**

**Ohio Oil Co.-Midwest Refining Co.**

Iles (Feb. 15, 1930).....$ .87
33 gravity and above.....87
Under 33 gravity.....65
Dutton Creek (Oct. 28, 1930).....1.01
Rock Creek, Wyo. (Oct. 28, 1930).....1.01
Salt Creek.....See gravity table
Big Muddy (Oct. 28, 1930).....1.00
Grass Creek, heavy (July 27, 1928).....90
Grass Creek, light (Oct. 28, 1930).....1.25
Mule Creek (May 21, 1929).....1.20
Elk Basin (Oct. 28, 1930).....1.25
Lance Creek (Oct. 28, 1930).....1.23
Poison Spider (Mar. 14, 1927).....1.00
Notches (Mar. 14, 1927).....65
Rex Lake (Feb. 22).....1.10
Osage (Nov. 1, 1930).....85
Lost Soldier (Oct. 28, 1930).....80
Hamilton Dome (Mar. 14, 1927).....85
Greybull (Oct. 28, 1930).....1.25
Torchlight (Oct. 28, 1930).....1.25
Cat Creek (Oct. 28, 1930).....1.25
Pondera (Montana) (Oct. 28, 1930).....1.45
Sunburst (Montana) (Oct. 28, 1930).....1.55
Hogback (Feb. 15, 1930).....1.40
Artesia (New Mexico) (Oct. 28, 1930)..75
Lea County.....See gravity table
Border, Mont.....1.55
Red Coulee, Alberta.....1.55

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Ohio Oil Co. and Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co.

(Continued on Page 186)

## CRUDE OIL GRAVITY TABLE

| Gravity— | Oklahoma-Kansas N. C. Texas 1 | North La.-Ark. 2 | Crane, Upton, Ector, Crockett, Howard, Glasscock, Mitchell, (West Texas) Lea, N. M. 3 | Wheeler County (Texas Panhandle) 4 | Gray County (Texas Panhandle) 5 | Carson and Hutchinson (Texas Panhandle) 6 | Salt Creek, Wyo. 7 | Stephens, Ark. 8 | Pecos-Winkler (West Texas) 9 | Grade B Gulf Coast and Refugio, Texas 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Below 25 | ..... | ..... | .50 | ..... | ..... | ..... | ..... | ..... | .55 | .75 |
| 25 to 25.9 | ..... | ..... | .52 | ..... | ..... | ..... | ..... | ..... | .57 | .92 |
| 26 to 26.9 | ..... | ..... | .54 | ..... | ..... | ..... | ..... | ..... | .59 | .94 |
| 27 to 27.9 | ..... | ..... | .56 | ..... | ..... | ..... | ..... | ..... | .61 | .96 |
| 28 to 28.9 | ..... | ..... | .58 | ..... | ..... | ..... | ..... | ..... | .63 | .98 |
| Below 29 | .65 | .65 | ..... | ..... | .50 | .45 | ..... | .54 | ..... | ..... |
| 29 to 29.9 | .69 | .69 | 60 | ..... | 54 | .49 | .69 | .58 | .65 | 1.00 |
| 30 to 30.9 | .73 | .73 | 62 | ..... | .58 | .53 | .73 | .62 | .67 | 1.02 |
| 31 to 31.9 | .77 | .77 | .64 | ..... | .62 | .57 | .77 | .66 | .69 | 1.04 |
| 32 to 32.9 | .81 | .81 | .66 | ..... | .66 | .61 | .81 | .70 | .71 | 1.06 |
| 33 to 33.9 | .85 | .85 | .68 | ..... | .70 | .65 | .85 | ..... | .73 | 1.08 |
| 34 to 34.9 | .89 | .89 | .70 | ..... | .74 | .69 | .89 | ..... | .75 | 1.10 |
| 35 to 35.9 | .92 | .92 | .72 | ..... | .77 | .72 | .92 | ..... | .77 | 1.12 |
| 36 to 36.9 | .95 | .95 | .74 | ..... | .80 | .75 | .95 | ..... | .79 | 1.14 |
| 37 to 37.9 | .98 | .98 | ..... | ..... | .83 | .78 | .98 | ..... | ..... | 1.16 |
| 38 to 38.9 | 1.01 | 1.01 | ..... | ..... | .86 | .81 | ..... | ..... | ..... | 1.18 |
| 39 to 39.9 | 1.04 | 1.04 | ..... | ..... | .89 | .84 | ..... | ..... | ..... | 1.20 |
| 40 and above | 1.07 | 1.07 | ..... | ..... | .92 | .87 | ..... | ..... | ..... | 1.22 |

Column 1—Carter Oil Co. posted above prices for Oklahoma and Kansas on October 28. Humble Oil & Refining Co. posted same for North Central Texas on October 28. Magnolia Petroleum Co. posted same for Kansas, Oklahoma and North Central Texas on October 27 from 29 degrees upward, but posted below 26 degrees at 53 cents; 26-26.9 degrees at 57 cents; 27-27.9 degrees at 61 cents; 28-28.9 degrees at 65 cents. Stanolind Crude Oil Purchasing Co. on November 1 adopted the schedule as listed in table; Prairie Oil & Gas Co. adopted the same on November 1, other companies following. North Central Texas, for the purpose of this table, includes North Texas, Ranger district, Mexia, Powell, Richland, Wortham, Van, Lytton Springs, Currie, Nocona, Moran and Corsicana (light oil).

Column 2—The Texas Company posted above prices on Caddo and Red River Crude, up to 39-39.9 degrees. It also posted 40-40.9 degrees at $1.07; 41-41.9 degrees at $1.10; 42-42.9 degrees at $1.13; 44-44.9 degrees at $1.16, and 44 degrees and above $1.19. Standard Oil Co. posted schedule as listed in table on October 30; Magnolia Petroleum Co. on October 30 posted prices as listed, starting at 29 degrees, but posted below 26 degrees, 53 cents; 26-26.9 degrees, 57 cents; 27-27.9 degrees, 61 cents; 28-28.9 degrees, 65 cents. Louisiana Oil Refining Co. adopted Standard of Louisiana prices on October 30. North Louisiana and Arkansas fields included in table are Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, Cotton Valley, Sarepta-Carterville, El Dorado and Rainbow.

Column 3—Posted by Humble Oil & Refining Co. on October 28.

Column 4—Companies quit posting but crude takes present Hutchinson-Carson prices.

Column 5—Humble Oil & Refining Co., Magnolia and Prairie, October 28. Prairie ceased posting and purchasing in all Panhandle fields November 27.

Column 6—Humble Oil & Refining Co., October 28.

Column 7—Midwest Refining Co. on October 28. All crude over 37 degrees 98 cents.

Column 8—Louisiana Oil & Refining Co. and Atlantic Oil Producing Co., October 30.

Column 9—Humble Oil & Refining Co., October 28.

Column 10—Humble Oil & Refining Co., October 28. On October 30, Gulf Refining Co. of Louisiana and Gulf Pipe Line Co. of Texas posted as follows for Grade B: Below 25 degrees, 69 cents; 25-25.9 degrees, 71 cents, with a 2-cent differential for each degree upward to and including 40 degrees and above at $1.01. The Texas Company adopted above schedule November 1.

## CALIFORNIA CRUDE OIL PRICES

**Standard Oil Co. (effective September 15, 1930), Union Oil Co. (effective September 15, 1930)**

| Gravity— | Long Beach, Seal Beach, Alamitos Hts., Huntington Beach, Inglewood, Torrance, Richfield, Olinda, Brea Canyon 1 | Whittier, La Habra, Coyote Hills 2 | Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills 3 | Montebello 4 | Santa Fe Springs 5 | Santa Maria, Coalinga 6 | Wheeler Ridge 7 | Orcutt, Ventura, Rincon 8 | Ventura Avenue 9 | Elwood Terrace 10 | Athens, Rosecrans, Domingues 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 to 14.9 | .70 | .70 | .55 | .70 | ..... | .55 | .55 | .55 | .70 | ..... | ..... |
| 15 to 15.9 | .70 | .70 | .55 | .70 | ..... | .55 | .55 | .55 | .70 | ..... | ..... |
| 16 to 16.9 | .70 | .70 | .55 | .70 | ..... | .55 | .55 | .55 | .70 | ..... | ..... |
| 17 to 17.9 | .70 | .70 | .55 | .70 | ..... | .55 | .55 | .55 | .70 | ..... | ..... |
| 18 to 18.9 | .76 | .76 | .62 | .71 | ..... | .62 | .62 | .65 | .76 | ..... | ..... |
| 19 to 19.9 | .82 | .82 | .70 | .77 | ..... | .70 | .70 | .70 | .82 | ..... | ..... |
| 20 to 20.9 | .88 | .87 | .78 | .83 | ..... | .78 | .78 | .78 | .88 | ..... | ..... |
| 21 to 21.9 | .94 | .93 | .86 | .90 | .92 | .86 | .86 | .90 | .91 | ..... | ..... |
| 22 to 22.9 | 1.00 | .98 | .94 | .97 | .95 | .94 | .94 | .95 | .94 | ..... | ..... |
| 23 to 23.9 | 1.07 | 1.04 | 1.02 | 1.05 | 1.01 | 1.02 | 1.02 | 1.02 | 1.00 | ..... | ..... |
| 24 to 24.9 | 1.12 | 1.08 | 1.06 | 1.08 | 1.05 | 1.04 | 1.04 | 1.08 | 1.05 | ..... | 1.13 |
| 25 to 25.9 | 1.17 | 1.12 | 1.10 | 1.11 | 1.09 | 1.06 | 1.06 | 1.11 | 1.10 | ..... | 1.17 |
| 26 to 26.9 | 1.22 | 1.16 | 1.14 | 1.15 | 1.13 | 1.08 | 1.08 | 1.15 | 1.15 | ..... | 1.22 |
| 27 to 27.9 | 1.26 | 1.21 | 1.18 | 1.19 | 1.18 | 1.11 | 1.10 | ..... | 1.19 | ..... | 1.27 |
| 28 to 28.9 | 1.30 | 1.25 | 1.23 | 1.23 | 1.16 | ..... | ..... | ..... | 1.23 | ..... | 1.32 |
| 29 to 29.9 | 1.34 | 1.29 | 1.29 | 1.26 | 1.28 | 1.19 | ..... | ..... | 1.27 | ..... | 1.37 |
| 30 to 30.9 | 1.38 | 1.33 | 1.35 | 1.29 | 1.33 | 1.23 | ..... | ..... | 1.31 | ..... | 1.42 |
| 31 to 31.9 | 1.43 | ..... | 1.40 | ..... | 1.38 | 1.27 | ..... | ..... | 1.36 | ..... | 1.47 |
| 32 to 32.9 | 1.48 | ..... | 1.47 | ..... | 1.43 | 1.31 | ..... | ..... | 1.41 | ..... | 1.52 |
| 33 to 33.9 | ..... | ..... | 1.53 | ..... | 1.48 | 1.35 | ..... | ..... | 1.47 | ..... | 1.57 |
| 34 to 34.9 | ..... | ..... | 1.59 | ..... | 1.53 | 1.39 | ..... | ..... | 1.53 | 1.32 | 1.62 |
| 35 to 35.9 | ..... | ..... | 1.65 | ..... | 1.58 | 1.43 | ..... | ..... | 1.59 | 1.39 | 1.66 |
| 36 to 36.9 | ..... | ..... | ..... | ..... | 1.63 | ..... | ..... | ..... | ..... | 1.46 | 1.72 |
| 37 to 37.9 | ..... | ..... | ..... | ..... | 1.68 | ..... | ..... | ..... | ..... | 1.53 | 1.78 |
| 38 to 38.9 | ..... | ..... | ..... | ..... | 1.73 | ..... | ..... | ..... | ..... | 1.60 | 1.84 |
| 39 to 39.9 | ..... | ..... | ..... | ..... | 1.78 | ..... | ..... | ..... | ..... | 1.66 | 1.90 |
| 40 to 40.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.72 | 1.96 |
| 41 to 41.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.78 | 2.02 |
| 42 to 42.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.84 | 2.08 |

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain, 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11 the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents. Fruitvale, posted by General Petroleum Co., 11-13.9, 50 cents; 14 gravity and above, 55 cents.

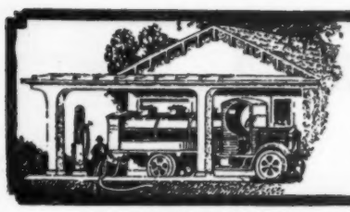
Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 12.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 32.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

Column 5—Price change posted by Standard of California September 16.

(Continued on Page 192)



# TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Dec. 9.

## ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

### STANDARD OIL CO. (INDIANA)

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax of | tank wagon |
| Chicago† | 16 0 | 17.0 | 3.0 | 11.0 |
| Decatur, Ill. | 13.0 | 15.0 | 3.0 | 11.0 |
| E. St. Louis | 15.7 | 14.7 | 3.0 | 10.2 |
| Joliet | 16.4 | 17.4 | 3.0 | 11.0 |
| Peoria | 15.0 | 14.0 | 3.0 | 11.0 |
| Quincy | 16.2 | 17.2 | 3.0 | 10.3 |
| Davenport, Ia. | 16.5 | 16.5 | 3.0 | 11.3 |
| Des Moines | 15.5 | 15.5 | 3.0 | 11.3 |
| Keokuk | 16.5 | 17.5 | 3.0 | 11.3 |
| Sioux City | 16.1 | 15.9 | 3.0 | 10.9 |
| Duluth, Minn. | 17.5 | 17.5 | 3.0 | 11.9 |
| Mankato | 14.0 | 14.0 | 3.0 | 11.7 |
| Minneapolis | 17.0 | 17.0 | 3.0 | 11.9 |
| La Crosse, Wis. | 16.2 | 17.2 | 2.0 | 12.0 |
| Milwaukee | 15.1 | 15.0 | 2.0 | 10.9 |
| Madison | 15.3 | 15.3 | 2.0 | 11.1 |
| Detroit, Mich. | 13.3 | 12 5 | 3.0 | 12 7 |
| Grand Rapids | 15.7 | 16.7 | 3.0 | 12 6 |
| Saginaw | 14 3 | 14.3 | 3.0 | 12.8 |
| Evansville, Ind. | 17.1 | 18.1 | 4.0 | 11.9 |
| Indianapolis | 16.9 | 17.9 | 4.0 | 12.1 |
| South Bend | 17.4 | 18.4 | 4.0 | 12 2 |
| Fargo, N. D. | 18 9 | 19.9 | 3.0 | 13 9 |
| Huron, S. D. | 17.5 | 17.5 | 4.0 | 12.7 |
| Sioux Falls | 17 8 | 16.4 | 4.0 | 12.4 |
| K. C., Mo. | 14.9 | 14.9 | 3.0 | 9.6 |
| Springfield* | 15 9 | 16.9 | 3.0 | 10.5 |
| St. Louis* | 12.9 | 13.0 | 2.5 | 10.3 |
| St. Joseph | 15.5 | 11.9 | 2.0 | 10.1 |
| Wichita, Kans. | 14 8 | 13.8 | 3.0 | 9.8 |
| Bartlesville, Ok. | 15.5 | 15.5 | 4.0 | 9.5 |

*State tax 2 cents; remainder city tax.
†Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

Effective August 5, the following quantity discounts from the service station prices are allowed on monthly sales of gasoline: 500 gallons or more, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

### PACIFIC COAST TERRITORY

**Standard Oil Co. (California)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Wh'ls'e price | Retail price | Incl'ds tax | of wagon | tank |
| Fresno | 23.0 | 21.0 | 3 0 | | 17.0 |
| San Francisco | 23 0 | 21.0 | 3.0 | | 15 5 |
| Los Angeles | 22 5 | 20 5 | 3.0 | | 15.5 |
| Reno, Nev. | 28.0 | 36.0 | 4 0 | | 19.0 |
| Portland, Ore. | 24.5 | 20.0 | 4.0 | | 16.5 |
| Seattle, Wash. | 23.5 | 20 0 | 3.0 | | 16.5 |
| Tacoma | 23.5 | 18.5 | 3 0 | | 16 5 |
| Spokane | 27.5 | 22.0 | 3.0 | | 20.5 |
| Phoenix, Ariz. | 19.5 | 22.5 | 4.0 | | 20.0 |

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

### SOUTHWESTERN DISTRICT

**Magnolia Petroleum Co.**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Dallas, Tex. | 14.0 | 17 0 | 4 0 | | 11 0 |
| Fort Worth | 14.0 | 17 0 | 4 0 | | 10.0 |
| Houston | 15 0 | 19 0 | 4.0 | | 11.0 |
| San Antonio | 13 0 | 17.0 | 4.0 | | 10 0 |
| El Paso | 16.0 | 20 0 | 4 0 | | 12.0 |
| Texarkana | 17.0 | 17.0 | 4 0 | | 12 0 |
| Muskogee, Ok. | 15.0 | 18.0 | 4 0 | | 9 0 |
| Okla. City | 13.0 | 16.0 | 4 0 | | 10 0 |
| Tulsa | 13.0 | 17.0 | 4.0 | | 10.0 |
| Ft. Smith, Ark. | 16.5 | 17.5 | 5.0 | | 12 0 |
| Little Rock | 15.0 | 16.0 | 5.0 | | 12.0 |

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

### NEBRASKA

**Standard Oil Co. (Nebraska)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Omaha | 17.25 | 18.25 | 4.0 | | 11 25 |
| McCook | 18 75 | 20.75 | 4 0 | | 12 75 |
| Norfolk | 17 25 | 17 25 | 4.0 | | 11.75 |
| N. Platte | 18.75 | 20 75 | 4 0 | | 12 50 |
| Scottsbluff | 18.75 | 20.75 | 4 0 | | 12.25 |

### OHIO

**Standard Oil Co. (Ohio)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Ohio points* | 15.0 | 19.0 | 4.0 | | †15.0 |

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.

### CENTRAL SOUTH DISTRICT

**Standard Oil Co. (Louisiana)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| N. Orleans, La.* | 15.5 | 16.5 | 6.0 | | 12.0 |
| Baton Rouge | 16 5 | 17.5 | 5.0 | | 13.0 |
| Alexandria† | 17.0 | 18.0 | 6.0 | | 13.0 |
| Lafayette* | 17.5 | 18.5 | 6.0 | | 13.0 |
| Lake Charles* | 17.5 | 18.5 | 6.0 | | 13.0 |
| Shreveport | 16.5 | 17.5 | 4.0 | | 13.0 |
| Knoxville, Tenn. | 18 0 | 19 0 | 5.0 | | 15.0 |
| Memphis | 16.0 | 17.0 | 5.0 | | 12.5 |
| Chattanooga | 17.5 | 18.5 | 5.0 | | 13.0 |
| Nashville | 17 0 | 18 0 | 5 0 | | 15.0 |
| Bristol | 19 0 | 20 0 | 5 0 | | 14 0 |
| Lt. Rock, Ark. | 15.0 | 16.0 | 5.0 | | 12.0 |

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.
†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

One-cent discount allowed off station price on all cash purchases. All other station discounts withdrawn October 2, 1930.

Two-cent discount off gasoline tank wagon price to dealers and commercial accounts.

### ATLANTIC COAST DISTRICT

**Standard Oil Co. (New Jersey)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Atlanta, Ga. | 20 0 | 22.0 | 6 0 | | 13.5 |
| Newark | 12 5 | 14 5 | 2 0 | | 10 5 |
| Annapolis, Md. | 16.0 | 17.0 | 4.0 | | 11.0 |
| Baltimore | 15.2 | 16.2 | 4.0 | | 9.5 |
| Cumberland | 17 0 | 18.0 | 4 0 | | 12 0 |
| Wash'gton, D.C. | 12.7 | 14 7 | 2 0 | | 10.7 |
| Danville, Pa. | 17.8 | 18.8 | 5.0 | | 11.8 |
| Norfolk, Va. | 16 3 | 17 3 | 5 0 | | 10.0 |
| Petersburg | 17.3 | 18 3 | 5 0 | | 11.3 |
| Roanoke | 18 0 | 18 0 | 5.0 | | 12 0 |
| Richmond | 16 7 | 17 7 | 5 0 | | 10 7 |
| Charles'n, W.Va. | 16.5 | 17.5 | 4.0 | | 11.5 |
| Keyser | 17.1 | 18 1 | 4 0 | | 12 0 |
| Parkersburg | 15 2 | 16 2 | 4.0 | | 10.2 |
| Wheeling | 16 4 | 17 4 | 4 0 | | 11 4 |
| Charlotte, N. C. | 18 9 | 19 3 | 5.0 | | 12.3 |
| Hickory | 18.6 | 19.6 | 5 0 | | 12 6 |
| Mt. Airy | 18 5 | 19.5 | 5.0 | | 12 5 |
| Salisbury | 18 5 | 19 5 | 5 0 | | 12 5 |
| Charleston, S.C. | 17 3 | 18.3 | 6.0 | | 10.3 |
| Columbia | 19.2 | 20.3 | 6.0 | | 12.3 |

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

### SOUTHERN DISTRICT

**Standard Oil Co. (Kentucky)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Atlanta, Ga. | 20.0 | 22.0 | 6 0 | | 13.5 |
| Augusta | 20 0 | 22 0 | 6 0 | | 15 5 |
| Macon | 20 0 | 22.0 | 6.0 | | 13.0 |
| Savannah | 18 0 | 20 0 | 6 0 | | 14 0 |
| Birm'ham, Ala. | 18.0 | 20.0 | 5 0 | | 14.5 |
| Mobile | 17 0 | 19.0 | 4.0 | | 10.5 |
| Montgomery | 18 0 | 20 0 | 4 0 | | 15.0 |
| Clarks'le, Miss. | 18.0 | 18.0 | 5 0 | | 11.0 |
| Jackson | 15 0 | 17 0 | 5 0 | | 13 0 |
| Natchez | 18.0 | 20 0 | 5.0 | | 13.0 |
| Gulfport | 18 0 | 18.0 | 5.0 | | 13 0 |
| Vicksburg | 18 0 | 20 0 | 5 0 | | 13 0 |
| Jack'ville Fla. | 17 0 | 19.0 | 6.0 | | 14 0 |
| Miami | 19 0 | 21 0 | 6 0 | | 14.0 |
| Pensacola | 20.0 | 21 0 | 6.0 | | 13.5 |
| Tampa | 18 0 | 20 0 | 5 0 | | 13 0 |
| Lexington, Ky. | 17 0 | 18.0 | 5.0 | | 14 5 |
| Covington | 18 0 | 20 0 | 5 0 | | 14.5 |
| Louisville | 16.0 | 18.0 | 5.0 | | 12 0 |
| Ashland | 18.0 | 20 0 | 5 0 | | 15 0 |
| Catlettsburg | 18.0 | 20.0 | 5.0 | | 15.0 |

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

### NEW YORK AND PART OF NEW ENGLAND DISTRICT

**Standard Oil Co. (New York)**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Albany, N. Y. | 15.6 | 17.6 | 2.0 | | 15 6 |
| New York* | 14.3 | 16.3 | 2 0 | | 14 3 |
| Buffalo | 17 8 | 19.8 | 2 0 | | 14 8 |
| Rochester | 18 0 | 20.0 | 2 0 | | 14 0 |
| Syracuse | 18.8 | 20.8 | 2.0 | | 14 8 |
| Boston, Mass. | 14 5 | 16.5 | 2.0 | | 13.5 |
| Augusta, Me. | 19 8 | 21 8 | 4 0 | | 14 8 |
| Manch't'r, N.H. | 19.4 | 21 4 | 4 0 | | 14 0 |
| Burlington, Vt. | 19.6 | 21.6 | 4.0 | | 15.2 |

*Prices in steel barrels.

### PENNSYLVANIA—DELAWARE AND PART OF NEW ENGLAND

**The Atlantic Refining Co.**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Pittsburgh, Pa. | 14.0 | 19.0 | ... | | 12 0 |
| Philadelphia | 14 0 | 19 0 | ... | | 12.0 |
| Scranton | 14 0 | 19.0 | ... | | 12.0 |
| Allentown | 14.0 | 19.0 | ... | | 12 0 |
| Altoona | 14.0 | 19.0 | ... | | 12 0 |
| Erie | 14 0 | 18.0 | ... | | 11.0 |
| Dover, Del. | 17.0 | 19.0 | 3.0 | | 12 0 |
| Wilmington | 17.0 | 19 0 | 3.0 | | 12.0 |
| Springf'd, Mass. | 17 5 | 19.5 | 2.0 | | 10 0 |
| Worcester | 17.3 | 19 3 | 2.0 | | 10.0 |
| Boston | 14 5 | 16 5 | 2 0 | | 10.0 |
| Providence, R.I. | 12.7 | 14 7 | 2.0 | | 10.0 |
| Hartford, Conn. | 17.5 | 19 5 | 2 0 | | 10.0 |
| New Haven | 17.6 | 19.6 | 2.0 | | 10.0 |

*Includes tax of 3 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

### ROCKY MOUNTAIN DISTRICT

**Continental Oil Co.**

| | Gasoline | | | | Kero. |
|---|---|---|---|---|---|
| | Tank wagon | Service station | Incl'ds tax | of wagon | tank |
| Denver, Colo. | 16 0 | 19 0 | 4.0 | | 13.5 |
| Pueblo | 17.0 | 20.0 | 4.0 | | 13.5 |
| Grand Junction | 18.0 | 19.0 | 4 0 | | 17.0 |
| Casper, Wyo. | 17 0 | 20.0 | 4.0 | | 12.0 |
| Cheyenne | 18.0 | 21 0 | 4 0 | | 13 5 |
| Butte, Mont. | 19 0 | 22.0 | 5 0 | | 18 0 |
| Billings | 20.0 | 23 0 | 5 0 | | 16 5 |
| Great Falls | 20.0 | 23.0 | 5 0 | | 18.0 |
| Helena | 20.0 | 23.0 | 5.0 | | 18 0 |
| Salt Lake, Utah | 20 0 | 23.0 | 3.5 | | 17.0 |
| Albu'que, N. M. | 16 0 | 18.0 | 5 0 | | 15.0 |
| Boise, Idaho | 22.5 | .... | 5 0 | | 19 0 |
| Twin Falls | 23.5 | .... | 5.0 | | 19.0 |

### STANOLIND FURNACE OIL IN CHICAGO

| | |
|---|---|
| Less than 100 gallons | 9 0 |
| 100 to 349 gallons | 8 0 |
| 350 gallons or more | 7.5 |

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

### NAPHTHA

| | Tank wagon | Tank car |
|---|---|---|
| Oleum spirits | 12 0 | 8.0 |
| V.M.&P. naphtha | 14 0 | 9 5 |
| Cleaner's naphtha | 16 2 | 11.0 |
| Stanisol | 16.2 | 11.0 |

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

### TANK WAGON CHANGES

Continental Oil Co. reduced the gasoline station price 2 cents in Grand Junction, Colo., to 19 cents, November 28.

Standard Oil Co. of Louisiana advanced the gasoline tank wagon and station prices 2 cents throughout Louisiana December 3, 1 cent of which equalized a 1-cent advance in the state tax November 27.

Magnolia Petroleum Co. advanced the gasoline tank wagon and station prices 1 cent in Fort Smith and Little Rock, Ark., December 2. On December 4 the tank wagon and station prices in Tulsa were reduced 1 cent. Continental Oil Co. reduced the gasoline tank wagon and station prices 2½ cents in Helena, Mont., November 8.

## FIRE DAMAGES REFINERY OF NEW YORK STANDARD

NEW YORK, Dec. 8.—Considerable damage was caused by fire and explosion at the Standard Oil Co. of New York plant in Brooklyn last night. The fire started when a steel tank containing 10,000 gallons of crude oil exploded, from an undetermined cause. The fire spread to a number of nearby tanks. About 15 other 10,000-gallon tanks containing crude oil and refined products subsequently burned.

The flames spread to the company's loading pier in the East River, destroying 500 drums of oil and 5,000 cases of naphtha which were on the pier. The blazing oil from the pier spread on the river setting fire to a fireboat and tanker, which were pulled out of the blazing area and washed down to extinguish the flames.

A number of tank barges, moored to the refinery pier, were also towed into midstream to escape the blaze. Explosion of a tank containing 50,000 gallons of distillate tore out a part of the brick wall surrounding the plant.

There were five alarms turned in for land apparatus, and a number of fireboats were called to the scene, special precautions being necessary to keep the fire from spreading from the Socony plant to the huge gas reservoir of Brooklyn Union Gas Co., which adjoins the oil plant.

No estimate of the damage to the Socony plant has been announced.

## THOMAS MANDEVILLE DEAD

Thomas Mandeville, veteran retired oil man, died of pneumonia at his home in Bradford, Pa., on Tuesday, December 3. Mr. Mandeville had lived in Bradford and its vicinity for 40 years, during much of which time he was field superintendent for the Kennedy Oil Co.

## CRUDE OIL PRICES

(Continued from Page 185)

### SOUTH CENTRAL AND SOUTHWEST TEXAS

| | |
|---|---|
| Darst Creek (Oct. 28, 1930)* | $0.90 |
| Luling (Oct. 28, 1930)† | .75 |
| Mi'ando (Oct. 28, 1930)* | .75 |
| Pettus (Oct. 28, 1930)* | 1.10 |
| Salt Flat (Oct. 28, 1930)* | .90 |
| Thrall‡ | ... |
| Lytton Springs (Lockhart). See gravity table | |
| Dobrowolski (Oct. 25, 1930)‖ | ... |
| Same as Mid-Continent gravity scale up to and including 38-38.9° at | 1.01 |
| Somerset (Oct. 25, 1930)¶ | ... |
| Same as Mid-Continent gravity scale up to and including 38-38.9° at | 1.01 |

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ‖Pioneer Oil & Refining Co.

### EASTERN STATES

**Joseph Seep Purchasing Agency**
(Effective Nov. 12, 1930)

| | |
|---|---|
| Seep Purchasing Agency withdrew from Bradford and Allegany Fields as a purchaser on May 16. | |
| Penna Grade Oil in National Transit Lines (Pennsylvania) | $1.85 |
| Penna Grade Oil in Southwest Pennsylvania Lines (Pennsylvania) | 1.80 |
| Penna Grade Oil in Eureka Pipe Line Lines (West Virgin'a) | 1.70 |
| Penna Grade Oil in Buckeye Pipe Line Lines (Ohio) (Sept. 14, 1930) | 1.45 |
| Corning Grade Oil in Buckeye Pipe Line Co.'s Lines (Oct. 28, 1930) | 1.30 |
| Somerset Oil in Eureka Pipe Line Lines (Kentucky) (Aug. 1, 1930) | 1.14 |
| Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) | 1.10 |
| Wayne District Oil in Cumberland Pipe Lines | 1.17 |

**Tide Water Pipe Co.**

| | |
|---|---|
| Bradford district (Nov. 12, 1930) | 2.15 |
| Allegany district (Nov. 12, 1930) | 2.15 |

**Pure Oil Co.**

| | |
|---|---|
| Cabin Creek, W. Va. (Nov. 12, 1930) | $1.70 |
| Kelly Creek, W. Va. (Nov. 12, 1930) | 1.70 |
| Bradford Hollow, W. Va. (Nov. 12, 1930) | 1.70 |

### MIDDLE WESTERN STATES

**Ohio Oil Co.**
(Effective Oct. 28, 1930)

| | |
|---|---|
| Lima | $1.10 |
| Wooster | 1.40 |
| Illino's | 1.30 |
| Indiana | .87 |
| Princeton | 1.30 |
| Plymouth | .88 |
| Western Kentucky | 1.15 |
| Midland, Mich.* | 1.10 |
| Dundee, Mich (Oct. 26)‖ | ... |
| Same as Mid-Continent gravity scale | |
| Upper and Lower Traverse Sands, Mich. (Oct. 28)‖ | ... |
| Same as Mid-Continent gravity scale | |
| Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (Oct. 28)‡ | .85 |
| Oil City, Ky.§ | 1.10 |
| Oil Springs (Canada) (Oct. 28)¶ | 1.57 |
| Petrolia (Canada) (Oct. 28)¶ | 1.50 |

*Posted by Pure Oil Co. ‡Posted by Paragon Development Co. §Posted by Stoll Refining Co. ¶Posted by Imperial Oil Co., Ltd. ‖Posted by Standard of Indiana for boat shipment.

### MEXICAN CRUDE

| | |
|---|---|
| Panuco* | $0.56 |

*F.o.b. ship, based on October transactions and exclusive of taxes and bar dues.

PETROLEUM JELLY . . . a familiar friend in every household . . . is the same sticky salve that makes motor oils thick and sluggish in winter.

The great Sinclair refineries, with modern refrigerators and separators, remove this paralyzing petroleum jelly from Sinclair Opaline at as low as 60° F. below zero. (Opaline is guaranteed to flow at zero.) With Opaline your customers are not forced to change to "light" motor oils for easy starting in winter!

Opaline is refined from paraffin base crudes according to the Sinclair Law of Lubrication. (Write for booklet explaining this famous Sinclair Law . . . it's a sensational sales builder you shouldn't overlook!)

This is the story and above is the girl who'll carry it into millions of homes from coast to coast. Cash in on the sweeping Opaline sales.

* * *

*Send a post card to our nearest office and a Sinclair salesman will tell you all about it. Sinclair Refining Company (Inc.), New York, Atlanta, Chicago, Fort Worth, Houston, Kansas City. Sinclair Refining Company of Canada, Ltd., Toronto. Sinclair Refining Company of California, Los Angeles.*

SINCLAIR OPALINE
REG. U. S. PAT. OFF.
MOTOR OIL

# New York Hears Prairie Merger Rumor

## Plan for Consolidation of Oil and Gas Company and Pipe Line Company as Preliminary to Expansion Program

NEW YORK, Dec. 8.—The New York Times says that behind the announcement that the Prairie Oil & Gas Co. would withdraw as a purchaser of crude oil in the Mid-Continent area, important oil quarters see signs of a plan for consolidation of the Prairie Oil & Gas Co. and the Prairie Pipe Line Co. Such a step, it was said, would strengthen the position of both companies on an expansion program in the marketing and refining branches of the industry. Recently negotiations for the merger of these two companies with the Sinclair Consolidated Oil Corp. were abandoned.

"A merger of the two Prairie companies, which have always operated together in the Mid-Continent oil fields, is considered a logical step. It would result, it was said, in supplying additional working capital to carry on large expansion. The balance sheet of the Prairie Pipe Line Co., as of December 31 last, showed government bonds of $53,606,622 and current assets of $11,038,449. Current liabilities were only $550,795.

"The withdrawal of Prairie Oil & Gas as a crude oil purchaser, it was said in the industry, may have an important bearing on the crude oil price structure and the proration agreement now in effect in the Mid-Continent Field. It is feared in some quarters that it will upset the entire proration plan because of loss of outlets for numerous small producers.

"For some time Prairie Oil & Gas has been reducing its purchases, cutting them in order to keep these purchases in line with market requirements. Loss of customers, principally former Standard Oil units, made this action necessary, it is stated in the industry.

"In recent years the big refining companies have built their own pipe lines and organized their own producing companies, and now are in a position to supply their own crude oil requirements."

### Inland Gas

A committee has been formed to protect the interest of holders of first mortgage 6½ per cent sinking fund bonds, series A, due February 1, 1938 of Inland Gas Corp., and first mortgage 6½ per cent sinking fund bonds, series A, due June 1, 1942, of Kentucky Fuel Gas Corp., following the appointment of a receiver for each of these corporations and default in the payment of interest due December 1, 1930, on the bonds of the Kentucky Fuel Gas Corp.

W. J. K. Vanston of White, Weld & Co. is chairman of the committee which includes Frederic J. Fuller, vice president, Central Hanover Bank & Trust Co., and P. Erskine Wood of G. M.-P. Murphy & Co. Samuel L. Rosenberry, New York, is secretary. Holders of these bonds are requested to deposit them with the Central Hanover Bank & Trust Co., depositary.

### Signal Oil & Gas

Taking cognizance of current market conditions, Signal Oil & Gas Co. has reduced the conversion price on its $2,500,000 6½ per cent debenture issue as applied to the Class A shares. On the basis of the new schedule, the current conversion price on the shares is at $35.71 to apply to April 30, 1931. Under the old schedule the conversion price was $45.45.

Under the new schedule, the conversion price after April 30, 1931, is advanced to $37 a share until April 30, 1932; to $38.46 to April 30, 1934, and to $40 to April 30, 1936. A corresponding change in the conversion price is made in succeeding years until April 30, 1945, when the conversion price is $47.62. Under the old schedule, the price advanced from April 30, 1931, to $47.62 until April 30, 1932. From this date until April 30, 1934, the conversion price was $50 and from April 30, 1934, to April 30, 1936, the price was $52.63.

The balance sheet as of June 30, 1930, showed the company to have net working capital of $3,101,241, which, after deducting $2,500,000 received from the bond issue, indicates an increase of $163,270 over the working capital of $437,971 reported June 30, 1929.

### United Carbon

United Carbon Co. has declared a dividend of 25 cents on the common stock and the regular semiannual dividend of $3.50 on the preferred stock, both payable January 1 to stock of record December 15.

### Mexican Petroleum

Mexican Petroleum Co. declared the regular quarterly dividends of $3 on the common and $2 on the preferred, both payable January 20 to stock of record December 31.

### Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

| | | | |
|---|---|---|---|
| Apr. 30 | 53.70 | Aug. 20 | 43.79 |
| May 7 | 50.23 | Aug. 27 | 42.83 |
| May 14 | 51.67 | Sept. 3 | 42.71 |
| May 21 | 49.71 | Sept. 10 | 42.84 |
| May 28 | 50.98 | Sept. 17 | 42.43 |
| June 4 | 50.94 | Sept. 24 | 40.62 |
| June 11 | 46.65 | Oct. 1 | 37.78 |
| June 18 | 41.41 | Oct. 8 | 35.85 |
| June 25 | 42.37 | Oct. 15 | 35.21 |
| July 2 | 44.13 | Oct. 22 | 31.88 |
| July 9 | 44.11 | Oct. 29 | 32.80 |
| July 16 | 46.42 | Nov. 5 | 31.77 |
| July 23 | 46.06 | Nov. 12 | 30.18 |
| July 30 | 44.89 | Nov. 19 | 31.54 |
| Aug. 6 | 45.24 | Nov. 26 | 30.86 |
| Aug. 13 | 43.53 | Dec. 3 | 30.53 |

### Colonial Beacon Oil

Colonial Beacon Oil Co. (controlled by Standard Oil Co. of New Jersey reports for quarter ended) September 30, 1930, net loss of $260.96 after expenses, interest, depreciation, etc., comparing with net loss of $459,303 in preceding quarter and profit before federal taxes, of $338,127 in third quarter of 1929. For nine months ended September 30, 1930, net loss amounted to $1,576,360 after above charges against profit before federal taxes of $869,385 in first nine months of previous year.

## GASOLINE MARKET WEAK IN WEST COAST STATES

LOS ANGELES, Calif., Dec. 8.—Although no change has been made by major companies in the retail price of California gasoline the bootleg variety dropped still lower during the past week. Independent gasoline can now be bought at the rate of 8 gallons for $1, which, including the regular road tax of 3 cents per gallon, means that this quality motor fuel is being retailed for 12½ cents per gallon tax paid.

In addition to Playa Del Rey crude refiners are picking up more than 1,000 bbls. of sweet crude at Long Beach each day at prices below the regular posted price. The oil at Long Beach is crude oil which formerly went to Richfield Oil Co. until that concern decided to operate its refineries on its own production.

## AMERICAN CHEMICAL MEETING

A meeting of the Oklahoma petroleum section of the American Chemical Society will be held in Tulsa, December 13, at which papers will be presented covering various phases of the problems of identifying and removing wax from the oil during the manufacture of neutrals and bright stocks. The meetings will be held at the University of Tulsa.

## INDEPENDENT OILS ON NEW YORK CURB

**Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.**

| 1930 High | 1930 Low | For week ended Dec. 3 Sales | For week ended Dec. 3 High | For week ended Dec. 3 Low | For week ended Dec. 3 Close | Stocks— | | Outstanding capital | Par value | Div. rate | Last paid | 1927 High | 1927 Low | 1928 High | 1928 Low | 1929 High | 1929 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4½ | ⅝ | 1,100 | 1 | ⅞ | 1 | American Maracaibo | (sh) | 700.000 | N.P. | .... | ..... | 7½ | 2¾ | 9½ | 3⅛ | 8⅝ | 1⅛ |
| 21 | 15¼ | 700 | 15¼ | 15¼ | 15¼ | British American | | 1,311,321 | N.P. | 20c | 10- 1-30 | 40 | 20½ | 55 | 32¾ | 62 | 7⅞ |
| 2¾ | ¾ | 600 | 1⅛ | 1⅛ | 1⅛ | Carib Syndicate | | $131.250 | 25c | .... | ..... | 28¼ | 15½ | 4½ | 3⅞ | 4⅞ | 1 |
| 44¼ | 16 | 20,800 | 19¾ | 18⅛ | 18⅞ | Cities Service | (sh) | 24,290,359 | N.P. | 30cA† | 11- 1-30 | 58¾ | 40½ | 90⅞ | 54 | 68⅛ | 20 |
| 93⅞ | 87½ | 300 | 89¼ | 89⅛ | 89⅛ | Cities Service pfd. | (sh) | 1,500,000 | N.P. | 50cM | 11- 1-30 | 95⅝ | 87 | 103½ | 94½ | 98¾ | 84 |
| ⅝ | 1/16 | 300 | ⅛ | ⅛ | ⅛ | Colombia Syndicate | | $2,000,000 | $1 | .... | ..... | 3⅞ | 1⅛ | 3¼ | .76 | 2 | ½ |
| 5⅞ | 2½ | 200 | 2½ | 2½ | 2½ | Consolidated Royal | | $5,000.000 | $10 | 12½cQ | 10-25-30 | 9¾ | 6⅜ | 8⅞ | 6¼ | 11⅛ | 2½ |
| 7⅝ | 3⅜ | 500 | 3¾ | 3⅝ | 3⅝ | Creole Petroleum | (sh) | 5,977,873 | N.P. | .... | ..... | 14⅞ | 9½ | 17½ | 9½ | 11¾ | 5⅝ |
| 1 | ¼ | 700 | 1 | ½ | ⅝ | Crown Central | (sh) | 587,000 | N.P. | .... | ..... | 3 | .50 | 3¼ | .76 | 2½ | ¼ |
| 1 | ⅞ | 100 | ⅞ | ⅞ | ⅞ | Crown Central (new) | | ..... | ... | .... | ..... | .. | .. | .. | .. | .. | .. |
| 21¾ | 4¾ | 100 | 5½ | 5½ | 5½ | Darby Petroleum (new) | | 1,019.392 | N.P. | 25cQ | 10-15-30 | 12 | 4 | 33½ | 3¼ | 26 | 6½ |
| 11 | 4⅛ | 300 | 4⅛ | 4⅛ | 4⅛ | Derby Oil & Refining | (sh) | 500.000 | N.P. | .... | ..... | 2½ | 74 | 2¼ | 1 | 11 | 2 |
| 60 | 30 | 100 | 42 | 42 | 42 | Derby Oil & Refining pfd. | | 48.500 | N.P. | .... | ..... | 16¾ | 4 | 21⅛ | 7½ | 44 | 20¾ |
| 166⅞ | 74⅛ | 400 | 76 | 75½ | 75½ | Gulf Oil Corp. | (sh) | 4.504.921 | $25 | 37½cQ | 10- 1-30 | 118 | 96¼ | 165 | 101⅛ | 209 | 115 |
| 1¾ | ⅜ | 800 | ½ | ½ | ½ | Intercontinental Petroleum | | $5,682.000 | $5 | .... | ..... | 2½ | .80 | 3⅜ | 1 | 2⅞ | ⅜ |
| 3 | 1⅛ | 200 | 1¼ | 1¼ | 1¼ | Kirby Petroleum | (sh) | 750.000 | N.P. | .... | ..... | 2¼ | 1⅛ | 3 | 1¼ | 3⅝ | 1¼ |
| 4¾ | ¾ | 3,500 | ⅝ | ½ | ⅝ | Leonard Oil & Development | | $50.000.000 | $25 | .... | ..... | 10⅞ | 5⅛ | 9⅜ | 5⅛ | 6¼ | 1 |
| 29 | 6¼ | 100 | 7¾ | 7¾ | 7¾ | Lion Oil & Refining | (sh) | 250.000 | N.P. | 50cQ | 10-27-30 | 27½ | 20 | 43⅞ | 20 | 38⅞ | 18 |
| 55⅞ | 20⅛ | 600 | 24⅛ | 24 | 24⅛ | Lone Star Gas | (sh) | 5.000.000 | N.P. | 25cQ | 9-30-30 | 59⅜ | 37 | 69⅛ | 48½ | 67⅞ | 28 |
| ½ | ⅛ | 300 | 1/16 | ⅛ | ⅛ | Magdalena Syndicate | (sh) | 850.000 | $1 | .... | ..... | 2⅞ | .80 | 1⅞ | .50 | 1¼ | ¼ |
| 16 | 3 | 1,000 | 3¼ | 3 | 3 | Margay Oils | | 160.000 | N.P. | .... | 7-10-30 | 52 | 12 | 48½ | 32 | 38½ | 14 |
| 7½ | 1¾ | 900 | 2 | 1¾ | 2 | Mexico-Ohio Oil Co. | | 500.000 | N.P. | .... | ..... | 12⅛ | 5 | 8 | 2¾ | 6⅜ | 2¼ |
| ¾ | ⅜ | 200 | ⅜ | ⅜ | ⅜ | Mountain & Gulf | | $4.000.000 | $1 | 2cQ | 10-15-30 | 1½ | 1 | 1¾ | .76 | 1½ | ¼ |
| 12⅛ | 5⅜ | 1,100 | 6 | 5¾ | 6 | Mountain Producers | | $1.682.182 | $10 | 40cQ | 10- 1-30 | 29¼ | 22¾ | 28⅞ | 19½ | 22⅞ | 7 |
| 3½ | 1¾ | 600 | 2 | 1¾ | 1¾ | New Bradford Oil | | $1.095.291 | $5 | 12½cQ | 10-15-30 | 5⅞ | 4⅝ | 5⅝ | 4¼ | 5 | 2½ |
| 7¼ | 1⅝ | 300 | 2⅜ | 1⅝ | 2⅜ | New Mexico and Arizona | | $1.000.000 | $1 | .... | ..... | 16 | 9¼ | 11⅞ | 7⅛ | 9⅜ | 2¼ |
| 11¼ | 3 | 700 | 4⅝ | 4 | 4 | North Central Texas | (sh) | 400.000 | N.P. | 15cQ | 9- 2-30 | 12⅜ | 9½ | 14¼ | 8½ | 18½ | 6⅛ |
| 2½ | ¼ | 200 | 5/16 | 5/16 | 5/16 | Pandem | (sh) | 489.875 | N.P. | .... | ..... | 9⅝ | 3¼ | 6 | 2⅛ | 3½ | ½ |
| 4⅜ | 1⅜ | 1,000 | 1⅝ | 1½ | 1½ | Pantepec Oil | (sh) | 1,506.000 | N.P. | .... | ..... | 12⅛ | 7 | 15⅝ | 8½ | 10½ | 1⅞ |
| ... | .. | No sales. | | | | Pennok Oil | | 150.000 | N.P. | .... | ..... | 12½ | 5⅛ | 7⅞ | 4⅞ | 7¾ | 4⅜ |
| 10½ | 4 | 100 | 4 | 4 | 4 | Red Bank Oil | (sh) | 250 000 | N.P. | .... | ..... | 24⅜ | 7 | 18 | 4⅞ | 16 | 9⅝ |
| 5⅜ | 1⅜ | 100 | 1½ | 1½ | 1½ | Reiter-Foster | (sh) | 388.584 | N.P. | .... | 12- 2-29 | 15½ | 3½ | 12⅞ | 4⅛ | 8½ | 1⅛ |
| 8⅝ | 2 | 300 | 3 | 2⅝ | 2⅝ | Ryan Consolidated | (sh) | 500 000 | N.P. | .... | ..... | 7 | 4½ | 12 | 4⅛ | 11 | 3 |
| 2½ | 1⅜ | 200 | 1½ | 1½ | 1½ | Salt Creek Consolidated | (sh) | 1.286.300 | $10 | 10cQ | 10- 1-30 | 8 | 5¼ | 7¼ | 5½ | 5⅞ | 1⅞ |
| 15¼ | 5¼ | 1,700 | 7⅛ | 6⅞ | 7 | Salt Creek Producers | (sh) | 1.496.859 | $10 | 50cQ | 11- 1-30 | 35½ | 27¼ | 35 | 23⅛ | 25⅞ | 9 |
| 1 | ½ | 100 | ½ | ½ | ½ | Savoy Oil | | $750.000 | $5 | .... | ..... | 7 | 1¼ | 3½ | 1 | 2½ | ⅛ |
| 4½ | 1¼ | 300 | 1⅜ | 1¼ | 1¼ | Venezuelan Petroleum | (sh) | 755.090 | $5 | .... | 5-15-30 | 7⅜ | 4¼ | 9¼ | 4⅜ | 6½ | 1⅜ |
| 5 | 2 | 100 | 2 | 2 | 2 | Woodley Petroleum | | $500.000 | $1 | .... | 6-30-29 | 7 | 4¾ | 8¼ | 4⅞ | 9½ | 2 |
| 2½ | ⅜ | 200 | ⅜ | ⅜ | ⅜ | Y Oil & Gas | | 100.000 | N.P. | .... | ..... | 6 | 1⅜ | 8⅜ | 2⅛ | 2⅞ | ¼ |

*Including one-half per cent monthly in stock. †Payable monthly and a monthly stock dividend of one-half per cent. x Ex-dividend.

# STANDARD OIL STOCKS ON NEW YORK CURB

**Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.**

| 1930 High | 1930 Low | For week ended Dec. 3 Sales | High | Low | Close | Stocks— | | Outstanding capital | Par value | Div. rate | Last paid | 1927 High | 1927 Low | 1928 High | 1928 Low | 1929 High | 1929 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ⅜ | 400 | ⅜ | ⅜ | ⅜ | Atlantic Lobos | | 499,448 | N.P. | .... | ..... | .. | .. | .. | .. | .. | .. |
| 25 | 11¼ | 50 | 13 | 12 | 12 | Borne Scrymser | | $1,000,000 | $25 | $1SA | 10-15-30 | 59 | 50 | 56½ | 44½ | 46½ | 25 |
| 69 | 43 | 100 | 43 | 43 | 43 | Buckeye Pipe Line | | $10,000,000 | $50 | $1Q | 9-15-30 | 60 | 45 | 76 | 53 | 74½ | 55 |
| 184⅞ | 100¼ | 300 | 125 | 117¾ | 125 | Chesebrough Mfg. | | $3,000,000 | $25 | $1Q* | 10-30-30 | 126 | 76½ | 161 | 117 | 210 | 130 |
| 65¾ | 22 | 100 | 22 | 22 | 22 | Cumberland Pipe Line | | $1,500,000 | $50 | $1Q | 9-15-30 | 137 | 89 | 114 | 67 | 75¾ | 40 |
| 54¾ | 28¼ | 50 | 28¼ | 28¼ | 28¼ | Eureka Pipe Line | | $5,000,000 | $100 | $1Q | 11- 1-30 | 68½ | 47 | 88 | 64⅛ | 70½ | 42 |
| 7 | 2½ | 100 | 3 | 3 | 3 | Galena Signal Oil | | $16,000,000 | $100 | .... | ..... | 13½ | 3½ | 13 | 4¼ | 6½ | 3 |
| 119 | 68⅝ | 300 | 68⅝ | 68⅝ | 68⅝ | Humble Oil & Refining | | $74,103,300 | $25 | 50cQ‡ | 10- 1-30 | 68½ | 54 | 114¾ | 59½ | 128 | 74⅛ |
| 320 | 303 | 100 | 320 | 315 | 315 | Illinois Pipe Line | | $20,000,000 | $100 | $4.50 | 9-15-30 | 182 | 123¾ | 290½ | 176½ | 340½ | 260 |
| 30 | 15⅞ | 3,600 | 17¾ | 17⅝ | 17⅝ | Imperial Oil of Canada (new) | (sh) | 26,421,768 | N.P. | 12½cQ | 9- 2-30 | 64¾ | 37¾ | 104 | 56¾ | 41 | 22 |
| 41 | 19⅞ | 200 | 20 | 20 | 20 | Indiana Pipe Line (new) | | $3,000,000 | $10 | 50cQ‡ | 11-15-30 | 94½ | 61 | 91⅞ | 74⅜ | 41⅞ | 26 |
| 24 | 13⅜ | 500 | 15 | 14⅞ | 14⅞ | International Petroleum (new) | (sh) | 14,247,088 | N.P. | 12½cQ‡ | 9-16-30 | 29 | 28¼ | 55 | 35 | 30⅜ | 15 |
| 22⅜ | 13 | 2,000 | 14½ | 14½ | 14½ | National Transit | | $6,362,500 | $12.50 | 25cQ‡ | 9-15-30 | 24 | 13½ | 32⅜ | 19⅜ | 25⅛ | 10⅛ |
| 21⅜ | 10⅛ | 200 | 14⅝ | 13⅝ | 14⅝ | New York Transit | | $1,000,000 | $10 | 40cQ† | 9-15-30 | 44½ | 31¼ | 75 | 38½ | 17½ | 10 |
| 54 | 26½ | 300 | 30 | 26½ | 30 | Northern Pipe Line | | $2,000,000 | $50 | $2SA | 7- 1-30 | 100 | 70 | 69 | 56½ | 63 | 41 |
| 32 | 15¾ | 200 | 17¼ | 17 | 17 | Penn Mex Fuel | | $10,000,000 | $25 | $1 | 8-22-30 | 39 | 12 | 84 | 28 | 44½ | 20 |
| 33 | 7¼ | 100 | 7¼ | 7¼ | 7¼ | Solar Refining | | $4,000,000 | $25 | .... | 12-20-29 | .. | .. | .. | .. | 50 | 29 |
| 20⅞ | 8¾ | 500 | 10 | 9⅞ | 10 | Southern Pipe Line | | $1,000,000 | $10 | 5cQ | 9- 2-30 | 27¼ | 15½ | 19 | 15 | 22½ | 13 |
| 45⅞ | 22 | 200 | 24 | 24 | 24 | South Penn Oil | | $30,000,000 | $25 | 50cQ | 9-30-30 | 41½ | 35 | 71⅞ | 36¾ | 60¼ | 35⅛ |
| 64 | 33½ | 50 | 32½ | 32½ | 32½ | Southwest Pennsylvania Pipe Lines | | $1,750,000 | $50 | $1Q | 1-10-29 | 83 | 55½ | 102 | 70 | 70 | 60 |
| 59⅞ | 35⅛ | 4,300 | 37 | 36¾ | 37 | Standard Oil of Indiana | | $348,175,069 | $25 | 62½cQ‡ | 9-15-30 | 81½ | 64⅜ | 95⅞ | 70⅞ | 63 | 45 |
| 40½ | 20⅛ | 1,600 | 23⅞ | 23⅝ | 23⅝ | Standard Oil of Kentucky | | $25,654,516 | $10 | 40cQ | 9-30-30 | 130 | 111½ | 179¾ | 122¼ | 46⅞ | 29 |
| 48⅞ | 35¼ | x 100 | 38¼ | 38¼ | 38¼ | Standard Oil of Nebraska | | $4,649,225 | $25 | 62½cQ‡ | 9-20-30 | 49½ | 40 | 54⅞ | 39⅞ | 50¼ | 40 |
| 108½ | 50⅛ | 500 | 54 | 52⅞ | 53 | Standard Oil of Ohio | | $14,000,000 | $25 | 62½cQ | 10- 1-30 | 87½ | 72 | 134 | 71 | 129 | 60 |
| 10 | 4 | 100 | 4 | 4 | 4 | Swan-Finch Co. | | $861,466 | $25 | .42¾cQ | 1-15-29 | 21 | 14½ | 23½ | 16 | 18 | 10 |
| 97⅞ | 59⅛ | 3,200 | 65⅞ | 64½ | 65⅛ | Vacuum Oil Co. | | $126,180,350 | $25 | $1Q | 9-20-30 | .. | .. | 111 | 72 | 133¾ | 75 |

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. x Ex-dividend.

# TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

**Quotations Compiled by Francis, Bros. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.**

| 1930 High | 1930 Low | For week ended Dec. 3 Sales | High | Low | Close | Stocks— | | Outstanding capital | Par value | Div. rate | Last paid | 1927 High | 1927 Low | 1928 High | 1928 Low | 1929 High | 1929 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31½ | 18 | 100 | 21¼ | 21¼ | 21¼ | Amerada Corp. | (sh) | 922,075 | N.P. | 50cQ | 10-31-30 | 37⅝ | 27⅝ | 43⅞ | 27½ | 42⅝ | 17½ |
| 37 | 8 | 300 | 9⅛ | 9⅛ | 9⅛ | American Republics Corp. | (sh) | 209,180 | N.P. | .... | ..... | 82½ | 35⅛ | 85 | 51⅛ | 64¾ | 12½ |
| 51 | 30⅞ | 10 | 39 | 39 | 39 | Associated Oil | | $57,260,300 | $25 | 50cQ | 9-30-30 | 50¼ | 35 | 53⅜ | 37½ | 47¼ | 34½ |
| 51⅜ | 18⅝ | 1,200 | 21⅞ | 21⅝ | 21⅞ | Atlantic Refining | | $66,763,775 | $25 | 25cQ† | 9-15-30 | 131⅝ | 104 | 66⅜ | 50 | 77⅞ | 30 |
| 34 | 12⅝ | 1,400 | 14¾ | 14½ | 14½ | Barnsdall Corp. A | | $56,546,600 | $25 | 50cQ | 11- 6-30 | 35½ | 20¾ | 54 | 20 | 49⅛ | 20 |
| 30½ | 10 | 5,300 | 11⅝ | 11¼ | 11¼ | Continental Oil of Delaware | (sh) | 4,741,554 | N.P. | .... | 12-15-27 | .. | .. | .. | .. | 47⅛ | 18 |
| 71⅛ | 28⅛ | 700 | 30½ | 29½ | 29½ | General Asphalt | (sh) | 413,333 | N.P. | $1Q | 9-15-30 | 96¾ | 65 | 94⅞ | 68 | 94¾ | 42¼ |
| 116⅞ | 33⅛ | 400 | 42½ | 41⅝ | 41⅝ | Houston Oil | | $24,968,600 | $100 | .... | 10-17-30 | 175¾ | 60⅛ | 167 | 79 | 109 | 26 |
| 11¾ | 7⅝ | 200 | 9¾ | 9⅜ | 9⅜ | Houston Oil (new) | (sh) | 998,744 | $25 | .... | ..... | .. | .. | .. | .. | .. | .. |
| 32 | 11⅛ | 1,300 | 14⅞ | 14⅛ | 14⅛ | Independent Oil & Gas | (sh) | 1,362,295 | N.P. | 37½c | 10- 2-30 | 32¾ | 17⅝ | 38⅜ | 21¾ | 39⅜ | 17¾ |
| 28⅜ | 3¼ | 5,600 | 4⅜ | 4¼ | 4¼ | Indian Refining | | $12,565,070 | $10 | .... | ..... | 12⅛ | 7⅝ | 39⅝ | 9 | 53 | 13⅛ |
| 20½ | 21¼ | 1,900 | 27⅛ | 27⅛ | 27⅛ | Lago Oil & Transport | (sh) | 3,992,122 | N.P. | .... | 5- 2-27 | 37¾ | 20½ | 39⅛ | 27⅜ | 38⅜ | 16½ |
| 12 | 4⅝ | 400 | 5 | 4⅞ | 5 | Louisiana Oil Refining | (sh) | 1,190,063 | N.P. | .... | ..... | 18⅛ | 10 | 19¾ | 9⅜ | 18 | 7 |
| 10⅜ | 2 | 200 | 2⅝ | 2⅝ | 2⅝ | Maracaibo Oil | (sh) | 330,000 | N.P. | .... | ..... | 22¾ | 12 | 25½ | 12½ | 18½ | 5⅛ |
| 37 | 9¾ | 1,200 | 13⅝ | 13 | 13 | Mexican Seaboard | (sh) | 1,244,383 | N.P. | .... | 10- 1-24 | 9¼ | 3 | 72 | 4⅝ | 59⅜ | 8¼ |
| 33 | 15½ | 600 | 16½ | 16⅜ | 16½ | Mid-Continent Petroleum | (sh) | 1,857,912 | N.P. | 50cQ | 11-15-30 | 39⅜ | 25½ | 44½ | 25½ | 39⅞ | 22⅛ |
| 32 | 16⅛ | 9,200 | 18⅛ | 18 | 18¾ | Ohio Oil | (sh) | 6,648,052 | N.P. | 50cQ | 9-15-30 | 67⅞ | 52 | 84 | 58½ | 79⅝ | 64¼ |
| 64¼ | 42 | 200 | 43 | 43 | 43 | Pan American P. & T. | | $50,084,700 | $50 | .... | 12-20-27 | 65⅞ | 40⅛ | 50⅞ | 38¼ | 69 | 40½ |
| 67½ | 41 | 200 | 43 | 43 | 43 | Pan American P. & T. "B" | | $121,110,650 | $50 | .... | 12-20-27 | 66⅝ | 40¼ | 58⅞ | 37¾ | 69¼ | 40½ |
| .. | .. | No sales. | | | | Pan American Western "B" | | 400,000 | N.P. | .... | 1-30-27 | 37⅞ | 16¾ | 28⅝ | 15½ | 18½ | 13⅜ |
| 12¾ | 2⅛ | 100 | 3 | 3 | 3 | Panhandle P. & R. | (sh) | 199,370 | N.P. | .... | ..... | 18⅞ | 8 | 21¾ | 11½ | 15¼ | 3 |
| 80 | 47½ | 100 | 70 | 70 | 70 | Panhandle P. & R. pfd. | | $2,564,400 | $100 | .... | 7- 2-30 | 83 | 54 | 108 | 70 | 76 | 47½ |
| 44⅝ | 16⅜ | 1,500 | 19⅜ | 18⅞ | 19 | Phillips Petroleum | (sh) | 2,593,075 | N.P. | 50cQ | 10- 2-30 | 60¼ | 36¼ | 53⅞ | 35¼ | 47 | 24¼ |
| 2½ | ⅝ | 300 | ⅝ | ⅝ | ⅝ | Pierce Oil Corp. | | $29,622,831 | $25 | .... | ..... | 1⅛ | ½ | 5¼ | ½ | 3⅜ | 1 |
| 7⅛ | 2¼ | 500 | 2¾ | 2¾ | 2¾ | Pierce Petroleum | (sh) | 2,500,000 | N.P. | 10c | 11-15-30 | 5½ | 2½ | 7 | 3½ | 5⅞ | ½ |
| 54 | 17⅛ | 1,100 | 17¾ | 17¼ | 17⅜ | Prairie Oil & Gas | | $60,848,000 | $25 | 50cQ* | 9-30-30 | 55½ | 45⅝ | 68 | 46 | 65⅝ | 40½ |
| 60 | 24⅜ | 1,600 | 27⅝ | 26½ | 26½ | Prairie Pipe Line | | $101,250,000 | $25 | 75cQ† | 9-30-30 | 190 | 130¾ | 280 | 172 | 65 | 45 |
| 11⅞ | 3 | 1,100 | 3⅝ | 3⅝ | 3⅝ | Producers & Refiners | | $37,438,950 | $50 | .... | 9-15-23 | 33⅞ | 16¾ | 29⅞ | 16 | 25⅞ | 4 |
| 40 | 14½ | 130 | 14½ | 14½ | 14½ | Producers & Refiners pfd. | | $2,845,350 | $50 | .... | 5- 4-25 | 50 | 36⅞ | 49⅝ | 41 | 46¾ | 25½ |
| 27¼ | 10¾ | 900 | 11 | 10¾ | 10¾ | Pure Oil | | $75,959,250 | $25 | 37½cQ | 9- 1-30 | 33½ | 25 | 31⅝ | 19 | 30¾ | 20 |
| 8¾ | 5⅞ | 11,600 | 8 | 6¼ | 8 | Richfield Oil (new) | | $52,410,875 | N.P. | .... | 9- 1-30 | 28⅝ | 25⅜ | 56 | 23 | 49⅝ | 20 |
| 25¾ | 7 | 400 | 8¼ | 8¼ | 8⅛ | Rio Grande Oil | (sh) | 1,236,270 | N.P. | .... | 7-25-30 | .. | .. | 37½ | 32 | 42½ | 15 |
| 56½ | 37⅝ | 1,000 | 41½ | 41¼ | 41¼ | Royal Dutch, N. Y. | (sh) | 611,303 | ... | $1.875 | 8-13-30 | 54½ | 44¼ | 64 | 44⅝ | 64 | 43⅛ |
| 48⅜ | 32 | 10 | 32 | 32 | 32 | Shell Transport & Trading Co. | | £23,985,000 | £1 | $1.45 | 7- 8-30 | 48⅝ | 40½ | 47⅞ | 41⅜ | 51½ | 40⅝ |
| 25½ | 7½ | 3,200 | 9¼ | 8¾ | 8⅞ | Shell Union Oil | (sh) | 13,066,497 | N.P. | .... | 6-30-30 | 31¾ | 23⅝ | 39¼ | 23¼ | 31⅝ | 19 |
| 37 | 7 | 2,000 | 8⅝ | 8⅝ | 8⅝ | Simms Petroleum | | $8,353,620 | $10 | 40cQ | 9-15-30 | 25⅜ | 14¼ | 27¼ | 18⅛ | 40⅛ | 15 |
| 32 | 11⅜ | 7,100 | 12⅞ | 12⅝ | 12¾ | Sinclair Consolidated | (sh) | 5,500,000 | N.P. | 25cQ | 10-15-30 | 22⅜ | 15 | 46¾ | 17⅜ | 45 | 21 |
| 112¼ | 103 | 100 | 103 | 103 | 103 | Sinclair Consolidated pfd. | | $16,025,250 | $100 | $2Q | 11-15-30 | 104½ | 97 | 110 | 102½ | 111 | 103 |
| 42 | 10¼ | 200 | 13½ | 13¼ | 13¼ | Skelly Oil | | $27,441,250 | $25 | 50cQ | 9-15-30 | 37⅜ | 24⅛ | 42⅝ | 25 | 40½ | 28 |
| 75 | 48⅝ | 3,000 | 49¾ | 49¼ | 49½ | Standard of California | (sh) | 12,594,098 | N.P. | 62½cQ | 9-15-30 | 60¾ | 50⅜ | 80 | 63 | 81⅞ | 51½ |
| 49 | 17⅞ | 200 | 19 | 19 | 19 | Standard of Kansas | | $8,000,000 | $25 | 50cQ | 9-15-30 | 20⅞ | 14⅝ | 37¾ | 15 | 33⅜ | 18 |
| 84⅞ | 49 | 4,600 | 54¼ | 53½ | 53¾ | Standard Oil of New Jersey | | $634,999,200 | $25 | 25cQ* | 9-15-30 | 41⅜ | 35⅛ | 59⅜ | 37¾ | 83 | 49 |
| 40¾ | 24¾ | 5,100 | 25½ | 25⅛ | 25½ | Standard Oil of New York | | $445,223,675 | $25 | 40cQ | 9-15-30 | 34⅛ | 19¾ | 33¼ | 28¾ | 48⅛ | 31⅞ |
| 70 | 47⅜ | 200 | 49⅛ | 49 | 49⅛ | Sun Oil | (sh) | 1,416,869 | N.P. | 25cQ | 9-15-30 | 34⅞ | 30 | 77 | 31½ | 68⅜ | 55 |
| 9¾ | 1⅛ | 200 | 1⅜ | 1¼ | 1⅜ | Superior Oil Corp. | (sh) | 776,979 | N.P. | .... | 12-20-20 | .. | .. | .. | .. | 24 | 5¼ |
| 60½ | 35 | 6,950 | 38¼ | 37⅞ | 38¼ | The Texas Corp. | | $246,204,900 | $25 | 75cQ | 10- 1-30 | 58 | 45 | 74¾ | 50 | 71⅞ | 50 |
| 14½ | 5½ | 600 | 6¼ | 6 | 6 | Texas Pacific Coal & Oil Co. | | $9,304,890 | $10 | 2½ % A‡ | 12-31-29 | 18⅞ | 12 | 26⅝ | 12⅛ | 23⅞ | 9½ |
| 31 | 15⅛ | 200 | 15½ | 15½ | 15½ | Tide Water Oil | (sh) | 2,191,759 | N.P. | 20cQ | 9-30-30 | 29⅛ | 19 | 41½ | 19⅝ | 40 | 14 |
| 94⅞ | 82 | 300 | 82 | 82 | 82 | Tide Water 5% pfd. | (sh) | 19,947,000 | $100 | $1.25Q | 11-15-30 | 90⅛ | 85 | 100⅛ | 86 | 97½ | 85⅛ |
| 17⅜ | 7½ | 3,800 | 8¼ | 8 | 8 | Tide Water Associated | (sh) | 5,560,424 | N.P. | 30cS | 8-15-30 | 19⅛ | 15¾ | 25 | 14¾ | 23½ | 10 |
| 89¾ | 69¾ | 300 | 71¼ | 71⅛ | 71⅛ | Tide Water Associated pfd. | | $73,284,500 | ... | $1.50Q | 10- 1-30 | .. | .. | .. | .. | 90⅞ | 74⅛ |
| 50 | 25⅛ | 1,200 | 26⅜ | 25½ | 25½ | Union Oil of California | | $104,342,375 | $25 | 50cQ | 11-10-30 | 56½ | 39⅝ | 58 | 42⅜ | 57 | 42⅛ |
| 38½ | 24 | 200 | 25¼ | 25 | 25 | Union Tank Car | (sh) | 1,254,048 | $100 | 40cQ | 9- 2-30 | 127½ | 94 | 128½ | 110 | 163¾ | 121⅞ |
| 27 | 6 | 400 | 6 | 6 | 6 | Warner-Quinlan | (sh) | 632,948 | N.P. | .... | 7- 1-30 | 34½ | 24½ | 44⅞ | 26 | 42⅞ | 15 |
| 21 | 9 | 600 | 10¾ | 10 | 10 | Wilcox Oil & Gas | (sh) | 428,907 | N.P. | .... | 5-10-28 | .. | .. | .. | .. | 29¾ | 12⅞ |

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. x Ex-dividend.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been splits in the stock.

## ROCKY MOUNTAIN AREA

(Continued from Page 175)

Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is bottomed at 4,485 feet and sidetracking 6⅝-inch pipe at 4,175 feet.

**Carbon County**

Petroleum Exploration Co. of California's No. 1, Section 29-23-88, Buck Springs, or the Willows Dome, is cementing off a flow of 5,000,000 feet of gas in the top of the Frontier at 791 feet. Midwest Refining Co.'s No. 27 Union Pacific, SE SE, Section 11-20-81, Elk Mountain, is bottomed at 1,275 feet and cleaning out at 1,260 feet. The Dakota is expected at around 3,500 feet.

**Sweetwater County**

Wyoming-California Petroleum Co.'s No. 1, Section 23-17-104, South Baxter Basin, joint with Montocal Oil Co., is shut down for the winter at 3,200 feet. The Dakota is expected at around 3,573 feet. Vermillion Oil Co.'s No. 1, SW cor., Section 16-12n-99, Hiawatha Dome, is bottomed at 3,465 feet and cleaning out. Hidden Treasure Oil Co.'s No. 1, SW cor., Section 32-21-103, North Baxter Basin, is shut down in the Mowry shale at 4,200 feet for 5⅜-inch casing, and its No. 1, NE cor. NW, Section 11-20-104, is shut down at 800 feet in 15½-inch casing.

**MONTANA**

Owing to heavy storms throughout the State, practically all drilling wells were shut down the past week. No completions were reported from any field and the condition of the crude market has kept the production down to a very low point.

**Rocky Mountain Production**

Average daily runs from fields week ending December 6:

| | |
|---|---|
| **WYOMING** | |
| Salt Creek | 29,410 |
| Big Muddy | 2,020 |
| Grass Creek | 1,990 |
| Elk Basin | 780 |
| Dallas | 280 |
| Frannie | 990 |
| Hudson | 200 |
| Lovell | 10 |
| Teapot | 20 |
| Warm Springs | 100 |
| Rock River | 2,140 |
| Lance Creek | 200 |
| LaBarge | 1,930 |
| Poison Spider | 390 |
| Oregon Basin | 3,200 |
| Osage | 1,000 |
| Ferris | 10 |
| Byron | 10 |
| Lost Soldier | 4,350 |
| Simpson Ridge | 50 |
| Dutton Creek | 50 |
| Total Wyoming | 49,130 |
| **MONTANA** | |
| Cat Creek | 1,120 |
| Lake Basin | 50 |
| Kevin-Sunburst | 4,070 |
| Pondera | 1,660 |
| Border | 500 |
| Total Montana | 7,400 |
| **COLORADO** | |
| Florence | 409 |
| Moffat | 938 |
| Fort Collins | 1,175 |
| Iles Dome | 1,048 |
| Rangley | 50 |
| Tow Creek | 368 |
| Boulder | 25 |
| Total Colorado | 4,010 |
| **NEW MEXICO** | |
| Rattlesnake | 1,110 |
| Hogback | 460 |
| Table Mesa | 82 |
| Artesia | 581 |
| Cap Rock | 333 |
| Getty | 178 |
| Hobbs | 31,064 |
| Jal | 1,337 |
| Lea | 3,605 |
| Eunice | 1,905 |
| Texas Pacific area | 250 |
| Total New Mexico | 40,895 |
| Total Rocky Mountain | 101,435 |
| Total previous week | 103,342 |
| Difference | 1,907 |

## BIG GAS PIPE LINE FOR SOUTH LOUISIANA

(Continued from Page 39)

ident of the gas transmission companies, is vice president of the United Pipe Line Corp.

Other Louisiana companies affiliated with the United Gas System but which still retain their original names are the Southern Gas & Fuel Co., State Line Oil & Gas Co. and Dixie Gulf Gas Co. Affiliated companies in Texas so far have not been affected but it is anticipated that all will be consolidated under the two operating units as soon as details can be worked out.

## REFINERS OBJECT TO LOWER GASOLINE RATES

(Continued from Page 182)

The refiners interested in the line and those who are not interested, pointed out, however, that this appeared to be a short-sighted move. Those interested in the line say they have completed their plans, the laying of the pipe is already well under way and operation of the line is fully assured. It will handle the equivalent of 125 cars of gasoline daily and that business has definitely left the rails. This group then pointed out the fact that crude oil lines, carrying considerably more oil have operated out of the Mid-Continent for many years in the past, without the railroads making any move to meet this competition, such as now proposed with respect to gasoline lines.

After a comparison of the activities of the crude lines and the gasoline lines it was shown that considerably more business was lost to the southwestern carriers as a result of the crude lines than could be lost to gasoline lines. In addition, the crude lines moved refining out of the Mid-Continent whereas gasoline lines will tend to stimulate refining in this area.

It was shown that each car of crude moved by the pipe line means a permanent loss to the Katy and Frisco while a car of gasoline sold in the Chicago area in competition with the Chicago plants means the railroads will have the other products from the crude to move such as kerosene, fuel oil, etc., and as the refining industry develops in the Mid-Continent there must be a corresponding increase in the movement of goods into this area, such as equipment, chemicals, food, building materials, etc.

Those refiners not interested in the pipe line then said they would expect those roads in the southwestern territory, other than the Katy and Frisco, to meet these rates in order that they would not be discriminated against in marketing their products on the same basis as those refiners favored by the new proposal. This sentiment was expressed by refiners in Oklahoma with plants near the points mentioned in the proposal and then the refiners in the North Texas area said a reduction would have to be made by roads in their territory in order to retain the same 2½-cent differential. These refiners further pointed out that if the same rate differential was not made, they would cut off from the northern market and would be forced to consider a gasoline line themselves.

The next move of the railroads will be to prepare a formal proposal to be submitted to the Interstate Commerce Commission but likelihood of its favorable review there seems to have been dampened by the arguments brought out against it at the St. Louis meeting.

## CRUDE RUNS LOWEST SINCE APRIL, 1928

(Continued from Page 38)

**REFINERY OPERATIONS IN ARKANSAS**

(Plants which have been in operation during the past year)

| Company and location— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| James H. Berry & Sons, Waterloo | 2,000 | 1,200 | 1,200 |
| Henry H. Cross Co., Smackover | 6,000 | 4,000 | 4,000 |
| Houston Oil Co., Camden | 6,000 | 2,200 | 2,600 |
| Kettle Creek Refining Co., Pearson | 5,000 | 1,600 | 2,000 |
| Lion Oil & Refining Co., El Dorado | 12,000 | 6,000 | 8,000 |
| Macmillan Petroleum Products Co., Norphlet | 1,800 | 1,600 | 1,800 |
| Ouachita Valley Refining Co., El Dorado | 2,000 | 1,000 | 800 |
| Root Refining Co., El Dorado | 10,000 | 5,700 | 5,000 |
| Simms Oil Co., Smackover | 3,000 | 2,000 | 2,000 |
| Total | 47,800 | 25,300 | 27,400 |

**REFINERY OPERATIONS IN WEST TEXAS**

(Plants which have been in operation during the past year)

| Company and location— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| Amarillo Producers & Refiners Corp., Pyote | 3,000 | (*) | (*) |
| Big Spring Refining Co., Big Spring | 2,500 | 1,250 | 1,000 |
| Big Lake Refining Co., Big Lake | 2,000 | (*) | (*) |
| Bluebonnett Oil Refining Co., Wickett | 5,000 | (*) | (*) |
| Burford Oil Co., Pecos City | 6,000 | 4,500 | 4,500 |
| Coltex Refining Co., Colorado | 10,000 | 6,300 | 6,500 |
| Coaden Oil Co., Big Spring | 15,000 | 6,000 | 7,500 |
| Deer Oil Corp., Brownwood | 2,000 | 500 | 500 |
| Deer Oil Corp., Luling | 2,500 | 2,000 | 2,000 |
| Del Rio Refining Co., Del Rio | 5,000 | (*) | 2,500 |
| Grayburg Oil Co., San Antonio | 6,000 | 2,000 | 2,000 |
| Great West Refining Co., Big Spring | 8,500 | 2,700 | 3,000 |
| Gulf Oil & Refining Co., Sweetwater | 5,000 | 5,000 | 5,000 |
| Huber Refining Co., Kingsmill | 3,000 | 400 | 400 |
| Humble Oil & Refining Co., San Antonio | 5,000 | 2,350 | 1,950 |
| Humble Oil & Refining Co., McCamey | 15,000 | 4,300 | 5,000 |
| Magnolia Petroleum Co., Luling | 3,000 | 2,800 | 2,800 |
| Misko Refineries, Inc., Laredo | 1,500 | 500 | 500 |
| Mid-Tex Refining Co., Midland | 2,500 | (*) | (*) |
| Pasotex Petroleum Co., El Paso | 10,800 | 8,000 | 10,000 |
| Pecos Valley Refining Co., Pyote | 8,500 | (*) | (*) |
| Pioneer Oil & Refining Co., Somerset | 1,500 | 700 | 900 |
| Richardson Refining Co., Big Spring | 6,000 | (*) | (*) |
| Rio Grande Oil Co., El Paso | 6,000 | 2,000 | 1,800 |
| San Angelo Refining Co., San Angelo | 2,000 | 200 | 200 |
| Sweetwater Oil & Refining Co., Sweetwater | 2,000 | (*) | 200 |
| The Texas Company, San Antonio | 3,000 | 2,400 | 3,000 |
| The Texas Company, El Paso | 2,000 | 1,500 | 2,000 |
| Tonkawa Petroleum Co., Pyote | 5,000 | 500 | 1,000 |
| Texas Mexican Oil & Refining Co., Laredo | 1,000 | 500 | 500 |
| Texas Petroleum Products Co., Somerset | 1,500 | 1,000 | 1,000 |
| Wickett Refining Co., Wickett | 2,500 | 160 | 200 |
| Total | 151,300 | 57,360 | 65,950 |

*Shut down.

**REFINERY OPERATIONS IN NORTH CENTRAL TEXAS**

(Plants which have been in operation during the past year)

| Company and location— | Daily capacity | Runs Dec. 1 | Runs Nov. 1 |
|---|---|---|---|
| American Refining Properties, Wichita Falls | 6,000 | 2,500 | 3,300 |
| Archer Refining Co., Megargel | 2,000 | 650 | 500 |
| Central Texas Refining Co., Angus | 4,000 | (*) | 800 |
| Central Texas Refining Co., Minerva | 2,000 | 600 | 600 |
| Continental Oil Co., Wichita Falls | 6,000 | 3,000 | 3,000 |
| Dale Oil & Refining Co., Electra | 4,000 | 3,800 | 3,000 |
| Empire Oil & Refining Co., Gainesville | 5,000 | 3,600 | 3,600 |
| Falls Refining Co., Wichita Falls | 2,000 | 1,000 | 1,000 |
| Gulf Refining Co., Fort Worth | 10,000 | 6,000 | 6,000 |
| Humble Oil & Refining Co., Breckenridge | 2,000 | 600 | 1,000 |
| Humble Oil & Refining Co., Chilton | 4,000 | 1,000 | 1,400 |
| Humble Oil & Refining Co., Neches | 5,000 | 1,000 | 1,800 |
| Iowa Park Producing & Refining Co., Iowa Park | 2,500 | 1,500 | 1,500 |
| LaSalle Petroleum Co., Burkburnett (Noble) | 3,500 | (*) | (*) |
| Macmillan Petroleum Co., Isom | 8,000 | 5,000 | 3,200 |
| Magnolia Petroleum Co., Fort Worth | 12,000 | 4,500 | 4,500 |
| Magnolia Petroleum Co. (White Eagle plant), Fort Worth | 6,000 | 2,500 | 2,500 |
| Magnolia Petroleum Co., Corsicana | 5,000 | 4,000 | 4,000 |
| Marathon Oil Co., Fort Worth | 5,000 | 3,500 | 3,500 |
| Olney Oil & Refining Co., Olney | 2,500 | 2,000 | 1,600 |
| Oriental Oil Co., Dallas | 5,000 | 1,000 | 1,000 |
| Orient Petroleum Co., Wichita Falls | 2,500 | 300 | 600 |
| Panhandle Refining Co., Wichita Falls | 5,000 | 3,700 | 3,700 |
| Petroleum Refractionating Co., Pampa | 5,000 | 5,000 | 5,000 |
| Phillips Petroleum Co., Isom | 15,000 | 10,000 | 11,000 |
| Primrose Refining Co., Wichita Falls | 2,500 | 2,000 | 2,000 |
| Simms Oil Co., West Dallas | 5,000 | 2,000 | 2,500 |
| Southland Refining Co., Olney | 1,000 | 200 | 200 |
| Star Refining & Producing Co., Fort Worth | 1,800 | 500 | 600 |
| Superior Refining Co., Tiffin | 2,000 | (*) | (*) |
| Tarrant Petroleum Co., Grand Prairie | 2,500 | (*) | (*) |
| Taylor Refining Co., Taylor | 6,000 | 3,700 | 2,000 |
| Taxman Refining Co., Wichita Falls | 2,500 | 2,000 | 2,500 |
| The Texas Company, Dallas | 16,000 | 16,000 | 16,000 |
| The Texas Company, Amarillo | 4,000 | 4,000 | 4,000 |
| Tidal Western Refining Co., Burkburnett | 3,000 | 2,000 | 2,000 |
| Texas Pacific Coal & Oil Co., Fort Worth | 3,000 | 1,900 | 2,000 |
| Texas Pacific Coal & Oil Co., Caddo | 1,200 | 500 | 800 |
| Waggoner Refining Co., Electra | 3,400 | 2,000 | 1,300 |
| Wilcox Oil & Gas Co. (Pampa Refining Co.), Pampa | 4,000 | 2,500 | 2,500 |
| Total | 186,900 | 107,050 | 106,600 |

*Shut down.

## URGE JOBBER SUPPORT OF CODE OF ETHICS

(Continued from Page 182)

Ahead for State Legislation?" Since there is a change of administration in the state government and Charles W. Bryan, who has always taken pleasure in criticizing the oil industry, will be governor, every oil jobber looks with interest at what may be introduced and attempted to be made effective during the coming legislature.

The following officers were elected for the ensuing year:

President, Claude C. Rosenberg of Lexington, who succeeds S. A. Wassum of Tekamah who had held the office for three terms and withdrew his name from consideration for a fourth term; first vice president, O. J. Shaw of Lincoln; second vice president, R. A. Ogier of Hendy-Ogier, Inc., North Platte.

The new directors elected for a term of three years were S. A. Wassum, Tekemah, and J. H. McCulloch, Hastings.

**Resolutions Adopted**

The following resolutions were adopted:

1. That it be the consensus of opinion of this association that the present gasoline tax of 4 cents be not increased and the present and active law remain unchanged.

2. That this association has followed the building of our road system under the guidance of our present state engineer, Roy Cochran, and we commend his administration and earnestly hope that the incoming administration will continue him in his present office.

3. We indorse an impartial administration of collecting present tax from all oil jobbers and urge more vigilance in collecting the tax along the state borders.

4. We recommend that a special legislative committee be appointed by the association to keep in touch with all new laws and changes affecting our industry.

5. That the association engage a field man to assist the secretary in securing more nearly 100 per cent membership.

## OIL SHALE INVESTIGATION

WASHINGTON, D. C., Dec. 8.—Investigation of all charges criticizing the handling of oil shale lands by the Department of the Interior will be made by the house committee on public lands unless the Senate committee decides to undertake such an investigation, it was stated by Representative Colton of Vernal, Utah, chairman of the house committee.

# JOINER OFFSET MAKES BETTER SHOW; MOST INTERESTING TEST MILE WEST

By L. E. Bredberg
*Fort Worth Bureau, The Oil and Gas Journal*

FORT WORTH, Tex., Dec. 8.—The Joiner Pool, Rusk County, East Central Texas, has yielded little more information except for one of the offset wells making a better showing, and details of the sale of the C. M. Joiner properties to L. H. Hunt of Shreveport being given out. This deal involves the exchange of 4,000 acres including the discovery and surrounding tracts for $24,000 in cash and $69,000 in notes payable within three, four, six and nine months, and $375,555.55 to be paid out of the first seven-thirty-seconds of oil produced and $534,445 out of the second seven-sixty-fourths of the oil produced, this oil to be prorated between the various leases increasing or decreasing the amount in oil payments in accordance with the failure or success of the leases to produce.

L. H. Hunt, Inc. has a south offset well shut down at 3,650 feet, standing at this depth for 10 days. It will probably be tested and completed within a short time due to this deal having been consummated and Hunt taking over the adjoining acreage.

**Rebuilding Rig**

Stroube and Stroube's No. 1 W. H. Frederick in the Juan Ximenes Survey, to the north of the Joiner discovery well, is still rebuilding rig after fire destroyed the rig last week when gas and oil was encountered and ignited. Total depth is 3,618 feet. On December 5 it made its fourth head, making 100 bbls. and filling up 2,600 feet with oil in a few ensuing hours. As soon as the rig is completed a test will be made and the well completed, looking to be about as good as the C. M. Joiner discovery well which has put 10,145 bbls. in tanks up to December 3, some of the oil being sold for fuel oil for drilling nearby tests. This oil is sold for $1.10 per barrel for that purpose.

Anderson and others' No. 1 Bradford, southeast of the discovery, is shut down at 3,592 feet. On a drill stem test from 3,512-86 feet it made 4 fourbles of oil and one of mud, not showing as good chances of making a producer although it may come through as a small well. The first coring was made from 3,529-30 feet but failed to make as good a showing as the deeper coring which helped the looks of the test and put it in the possibility class.

**Most Interesting Test**

Frank Foster and Deep Rock Oil Co.'s No. 1 Ashby, about 1 mile to the west of the Joiner discovery, is the most interesting test of the area and will be tested about the middle of the week to prove its merits. It is still shut down at 3,618 feet. Casing was set and cemented at 3,580 feet. Frank Foster and Jefferys have built a derrick for a northeast offset to No. 1 Ashby.

Several leases changed hands around this well during the past 10 days, the highest price paid for adjoining acreage

(Continued on Page 192)

## EAST CENTRAL TEXAS WILDCATS

Week Ending December 8

**DELTA COUNTY**

D. S. Hoods' No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur. ..... Cored 1,202 ft.

Worthington and Stedman's No. 1 W. H. Dejehett, 150 ft. from S and 776 ft. from W of 52-ac. tract, E. Chick Sur. ..... Shut down 605 ft.

**FANNIN COUNTY**

E. A. Parsons et al's No. 1 Morgan in the English Sur., 3 miles NE of Savoy ..... Shut down 3,435 ft.

E. M. Rogers' No. 1 McSwain, 300 ft. S and E of Michael Daly Sur., in Juan Telgado Sur., 1½ miles NE of Lomasco ..... Shut down 1,500 ft.

**GREGG COUNTY**

M. S. Hammond's No. 1 J. M. Hamby, 278 ft. from E line, 1,667 ft. S of Hamby 3,800-ac. tract, Martin Lant Sur. ..... Shut down 2,588 ft.

J. C. Ferrell's No. 1 J. K. Lathrop, 661 ft. from N and 1,194 ft. from W of 96-ac. tract, William Robinson Sur. ..... Set 100 ft. of 12½-in. pipe.

**HENDERSON COUNTY**

H. E. Ashburn et al's No. 1 T. E. Barry, center of Barry 59 ac. tract in A. York Sur. ..... Drlg. 3,512 ft.

E. L. Chapman's No. 3 Cade, 1,560 ft. from N and 750 ft. W, J. B. Dorsey Sur. ..... Drlg. 600 ft.

Texas State Oil Co.'s No. 1 Skinner, 150 ft. from E and 150 ft. from S. J. Henshaw Sur. ..... Shut down 4,314 ft.; slight odor oil 4,402-04 ft.

**HUNT COUNTY**

Mamie S. Hammond's No. 1 W. H. Adams, center of survey, west of Branson Sur., J. A. McFarland Sur. ..... Derrick blew down.

**LAMAR COUNTY**

Everett & Allen's No. 1 Guest, 250 ft. S and 2,046 ft. E of 100-ac. tract, L. Roberts Sur. ..... Shut down 664 ft.

**NAVARRO COUNTY**

Young et al's No. 1 Farmer, 700 ft. from S and 400 ft. from E of 110-ac. farm in Finley Sur. ..... Shut down 960 ft.

**POLK COUNTY**

Sunshine Oil Co.'s No. 1 J. A. Collins, 313 ft. from NE 150 ft. from SE at right angles to line, A. Viesca Sur. Drlg. plug 3,341 ft.

**RAINS COUNTY**

Everett & Morrison's No. 1 Franklin, 640 ft. from S and E of 75-ac. tract in John Christian Sur., 6 miles SE of Emory ..... Spudded and shut down.

**RED RIVER COUNTY**

Buffington et al's No. 1 L. H. Moore, 160 ft. from S and 160 ft. from W of 100 acres, Daniel Cornelius Sur. ..... Shut down 575 ft.

Lloyd Oil Co.'s No. 1 R. H. Mace, 150 ft. from N and 150 ft. E of Mace 86-ac. tract, William Cullan Sur. ..... Drlg. 2,400 ft.

Droppleman and Bunely's No. 1 J. W. Cunningham, 250 ft. E and 250 ft. S of 180-ac. tract, S. B. Shi Sur. ..... Shut down 1,290 ft.

**RUSK COUNTY**

Stroube and Stroube's No. 1 H. Frederick, 156 ft. from N and 500 ft. from W of SE of Frederick 195 acres, Juan Ximenes Sur. ..... Shut down 3,618 ft.; rebuilding derrick; made fourth head December 5; 100 bbls. 2,600 ft.; oil in hole now.

E. L. Chapman's No. 1 A. P. Finney, 150 ft. from W of E 20 acres of 102-ac. tract, Isaac G. Parker Sur. ..... Derrick.

Dan Dillon et al's No. 1 W. H. Frederick (Jake), 150 ft. from E and 150 ft. from S of 50-ac. tract, Juan Ximenes Sur. ..... Derrick.

Goodman's No. 1 Oscar Jones, 250 ft. from W and 150 ft. from N of railroad, Brown Sur. ..... Drlg. 850 ft.

Omaria Meredith's No. 1 Robertson, 150 ft. N along W line of George Guthrie Sur. from SE cor. and 150 ft. W of E line of Robertson 20-ac. tract, R. H. Pinney Sur. ..... Derrick (rotary).

A. A. Malone's No. 1 G. T. Moore, 150 ft. from E and 150 ft. from S. Juan Ximenes Sur. ..... Digging pit.

Frank Foster et al's No. 1 Ashby, 200 ft. from N and 250 ft. from E of 75-ac. tract, Juan Ximenes Sur. ..... Top sand 3,597 ft.; T. D. 3,614 ft.; on drill stem test made 20-minute flow; casing set 3,580 ft.

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N and 420 ft. from E of SE cor. of B. Smith Sur. ..... Derrick.

Mass et al's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartinas Sur. ..... Rig up.

Rosenfield's No. 1 L. A. Pinkston, 150 ft. from N and 263 ft. from W of Pinkston 77-ac. tract, Maria V. Pena Sur. ..... Preparing to clean out.

Anderson et al's No. 1 G. T. Moore, 600 ft. from E along S line of tract, Juan Ximenes Sur. ..... Derrick.

Anderson et al's No. 1 Bradford, 150 ft. from N and 150 ft. from E of Lot No. 2, Juan Ximenes Sur. .... Shut down 3,592 ft.; drill stem test; made 4 fourbies of oil and mud.

Tex-Lloyd Oil Co.'s No. 1 Camp, 150 ft. from E and 150 ft. S of 5-ac. tract, Juan Ximenes Sur. ..... Waiting on cement to set 3,530 ft.

L. H. Hunt's No. 1 Bradford, 1,269 ft. W and 1,083 ft. S of SW cor. of J. T. Moore's 100 acres, Juan Ximenes Sur. ..... Shut down 3,650 ft.

Bateman et al's No. 1 Lois Della Crim, 3,088 ft. W along N line of survey of NE cor. and 400 ft. S at right angles to N line of survey, E. G. Serien Sur. ..... Shut down 2,820 ft.

**SMITH COUNTY**

Owens & Sloan Oil Co.'s No. 1 Stearns, 846 ft. along W lines of John Waller Sur. from NE cor. of J. O. Dillard Sur., and 80 ft. E at right angles to W line of J. Waller Sur. ..... Sidetracking drill pipe 3,734 ft.

Sun Oil Co.'s No. 1 D. McGehee, 500 ft. W and 250 ft. S of SW cor. of Mrs. Julia Phillips 55-ac. tract, Thomas Quevado Sur. ..... Drlg. 2,930 ft.

Thayer & Rogers' No. 1 Willingham, 150 ft. N and W of 14.5-ac. tract, Jacob Hernin Sur. ..... Shut down 2,000 ft.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S, W of 89-ac. tract in A. J. Legrone Sur., 4 miles SE of Winona ..... Fishing 3,681 ft.

**TITUS COUNTY**

Deep Rock Oil Co.'s No. 1 Ed McElroy, C of 100 acres, K. Lewis Sur. ..... Drlg. 2,878 ft.

**VAN ZANDT COUNTY**

L. R. Barton's No. 1 Wamble, 300 ft. from S and W of 100-ac. tract in Pleasant Young Sur. ..... Derrick.

Cranfill & Germany's No. 1 Swain, 127 ft. N and 50 ft. from W of excess strip on W side of O. L. and L. L. Swain farm ..... Shut down 14 ft.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ..... Temporarily abnd.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines fo Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ..... Temporarily abnd.

Hartt Oil Co.'s No. 1 Dr. L. M. Cox and A. C. Night Sur., 1,785 ft. N of S line and 524 ft. E of W line .... Shut down 200 ft.

Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ..... Spudding.

Humble Oil & Ref. Co.'s No. 5 R. S. Blake, 150 ft. from N and 150 ft. from E of SW cor of Mrs. E. E. Carroll farm, John Walling Sur. ..... Top first chalk 1,950 ft.; base 1,962 ft.; top second chalk 2,344 ft.; base 2,495 ft.; top sand 2,596 ft.; drlg. 2,600 ft.

Humble Oil & Ref. Co.'s No. 6 R. S. Blake, 150 ft. from N and 150 ft. from W of SW cor. of Mrs. E. E Carroll farm, elevation 485 ft.; John Walling Sur. ..... Location.

J. C. Fare's No. 1 F. S. Hand, C of Hand's 50-ac. tract, William Shuman Sur. ..... Drlg. 3,510 ft.

Pure Oil Co.'s No. 3 D. R. Howell, 250 ft. S of N line and 250 ft. E of W line of lease (60 acres), Mund Gross Sur. ..... Shut down 308 ft.; cemented csg.

Pure Oil Co.'s No. 3 Mary P. Neil (100 acres), 225 ft. S of N line and 225 ft. E of W line of lease, James Rase Sur. ..... Spudded 30 ft. (rotary).

Pure Oil Co.'s No. 5 N. E. Clark (89 acres), 200 ft. S of N line and 225 ft. E of W line of lease, J. Prado Sur. ..... Drlg. 300 ft. (rotary).

Pure Oil Co.'s No. 5 A. R. Tunnell (101.2 acres), 110 ft. E of W line and 203 ft. N of S line of lease, John Walling Sur. ..... Drlg. 425 ft. (rotary).

Pure Oil Co.'s No. 2 Ella York (39.6 acres), 200 ft. W of E line and 250 ft. N of S line, John Walling Sur. ..... Rig (rotary).

Pure Oil Co.'s No. 3 M. F. Shirley (38 acres), 150 ft. S of N line and 150 ft. E of W line of lease, John Walling Sur. ..... T. D. 311 ft.; set csg.

Pure Oil Co.'s No. 3 O. L. and L. L. Swain (43.8 acres), 806 ft. S of N line and 200 ft. W of E line of lease, John Walling Sur. ..... Rig (rotary).

Pure Oil Co.'s No. 2 A. D. Clark, 380 ft. NW of S cor. of Mund Gross Sur., and 170 ft. SW of NW line of lease in J. Prado Sur. ..... T. D. 2,924 ft.; ready to swab in.

Pure Oil Co.'s No. 4 N. E. Clark, 109 ft. W of W line of A. D. Clark 17-ac. lease, and 645 ft. S of N line, A. H. Wiley Sur. ..... Cement setting 2,793 ft.

Pure Oil Co.'s No. 2 J. T. Taylor, 202 ft. from W of E line and 150 ft. from S of N line, John Walling Sur. ..... Cement setting 2,658 ft.

H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ..... Shut down 2,212 ft.

Howard & Dooley's No. 1 Elliott 188-ac. tract in W. H. Bundy Sur. ..... Derrick.

Humble Oil & Ref. Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. Temp. abnd. 2,987 ft.

Imperator Oil Co.'s No. 2 G. W. Carter, 175 ft. from S and 35 ft. from W of G. W. Carter 171-ac. tract, William Daniel Sur. ..... Shut down.

Jenkins et al's No. 1 V. T. Davis, SE cor. of 139.8-ac. tract, Nacogdoches County School Land ..... Shut down 3,031 ft.; pumping 8 bbls. per day.

Pure Oil Co.'s No. 1 H. C. Gilbert 62-ac. tract, 250 ft. W of E line and 250 ft. S of N line, Mund Gross Sur. ..... Drlg. 2,910 ft.

Pure Oil Co.'s No. 1 Sam Allen, 835 ft. E of W line and midway between N and S line of lease, J. Prado Sur. ..... T. D. 2,942 ft.; coring (rotary).

Pure Oil Co.'s No. 2 W. H. Cook (86 acres), 675 ft. W of E line and 225 ft. N of S line, Mund Gross Sur. ... Set csg. 2,972 ft.; ready to swab in.

Pure Oil Co.'s No. 2 R. A. Howell (22 acres), 894 ft. N of S line and 225 ft. E of W line of tract in A. McPhail Sur. ..... Drlg. plug 2,632 ft.

Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ..... Derrick standing.

Roy Stumpff's No. 1 Riggs, 169 ft. from E and 155 ft. from S of 3-ac. tract, William Daniel Sur. ..... Derrick (rotary).

The Texas Company's No. 4 R. A. Tunnell, 335 ft. E of most easternly W line and 217 ft. S of N line of lease, John Walling Sur. ..... T. D. 2,731 ft.; waiting on cement to set.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. .... Drlg. 1,028 ft.

Vitek Oil Co.'s No. 1 Smith, 150 ft. S and 15 ft. from W of L. A. Smith 40-ac. farm in John Walling Sur... Derrick.

Maud Powell's No. 1 Killam, 1,360 ft. from NW, along SW line from most S cor. of 52-ac. tract and 425 ft. NE to SW line, Jessie Russell Sur. ..... Coring 4,540 ft.

**WOOD COUNTY**

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. .... Shut down 997 ft.

## EAST CENTRAL TEXAS

(Continued from Page 191)

being reported at $1,500 per acre. This was for 21.5 acres in the Mayfield Alford tract north and northeast of the Foster and Deep Rock test. Another report stated that the Deep Rock Oil Co. had paid $300 in cash and $200 in oil for 40 acres out of Mrs. Daisy Bradford's 75-acre farm, south of the Foster and Deep Rock well.

Adams and Lyle, the Arkansas Fuel Oil Co., Kirby Oil Co., Cranfill and Germany and Bloxson and Matthews will complete the Rosenfield test on the Pinkston farm in the Maria V. Pena Survey, a little over a mile south of the Joiner Pool. It has been standing shut down at 2,015 feet for the past two months. Bloxson and Matthews have the present drilling contract and will do the drilling.

Tex-Lloyd Oil Co.'s No. 1 Camp to the northeast of the discovery well is still shut down at 3,530 feet after casing was cemented. The plug should be drilled during the week and more information given on the area by this test which now looks to have better chances of producing since many believe the pool will run to the west and northwest from the Joiner well.

**Anderson County**

Humble Oil & Refining Co.'s No. 1 McGaffrey in Survey No. 3, I.&G.N. Survey, in the Blackfoot area of Anderson County, went out of Austin chalk at 4,341 feet and is now drilling at 4,415 feet in shale. Top of the chalk was reported by the driller at 4,041 feet.

Texas-State Oil Co.'s No. 1 Skinner in the S. J. Henshaw Survey, Henderson County, is now coring at 4,440 feet in sandy shale. This is another interesting test for East Central Texas along with the well of the Humble Oil & Refining Co.

New potential production of the Van Pool, Van Zandt County, was given as 335,952 bbls. per day through eleven-sixteenths-inch choke from 168 producing wells on 101.606 units. This is a gain of 23,326 bbls. from December 1 to 15 over the preceding 15-day period.

Four wells were completed in the pool with several others ready to drill plug, and others ready to swab in. No locations were reported for the field, and only 15 wells are drilling, activities being at a minimum.

The Imperator Oil Co. abandoned its No. 1 Luther which is in the southwest corner of the G. J. Luther 32-acre tract in the extreme northern part of the M. Gross Survey, the farthest northern test drilled in the Van area. Total depth of the test is 3,020 feet.

Daily average production for the pools in the East Central Texas area for the week ending December 6, follows:

| | |
|---|---|
| Boggy Creek | 2,810 |
| Cedar Creek | 50 |
| Currie | 290 |
| Hill County | 30 |
| Mexia | 3,903 |
| Minerva | 545 |
| Nigger Creek | 175 |
| Powell | 5,289 |
| Richland | 140 |
| Rusk County | 184 |
| Thrall | 40 |
| Van | 27,581 |
| Wortham | 620 |
| Total East Central Texas | 41,657 |
| Week ending November 29 | 41,656 |
| Increase | 1 |

### COMPLETIONS IN EAST CENTRAL TEXAS

**Cherokee County**

Arkansas Fuel Oil Co.'s No. 1 N. A. Deaton, top Pecan Gap 3,493 feet, base of Pecan Gap 3,813 feet, top Woodbine sand 4,628-4,705 feet, dry and abandoned, total depth 4,705 feet.

**Ellis County**

Triangle Oil Corp.'s No. 1 Walter Hale, dry and abandoned, total depth 3,190 feet.

**Van Zandt County**

Hervey's No. 1 Foster, dry and abandoned, total depth 4,601 feet. L. B. Pruett's (Imperator Oil Co.) No. 1 G. J. Luther, dry and abandoned, total depth 3,020 feet. Pure Oil Co.'s No. 1 Clark, top pay 3,596 feet, initial production 140 bbls. on eleven-sixteenths-inch choke, total depth 2,956 feet. Same company's No. 2 Smith (Lease 104), top pay 2,657 feet, initial production 125 bbls. on eleven-sixteenths-inch choke, total depth 2,932 feet. Same company's No. 2 Ellison (Lease 67), top pay 2,768 feet, initial production 86 bbls. on eleven-sixteenths-inch choke, total depth 2,957 feet. Same company's No. 2 Neills (Lease 66), top pay 2,810 feet, initial production 90 bbls., on eleven-sixteenths-inch choke, total depth 2,955 feet.

## SINCLAIR ENLARGES WELLSVILLE, N. Y., PLANT

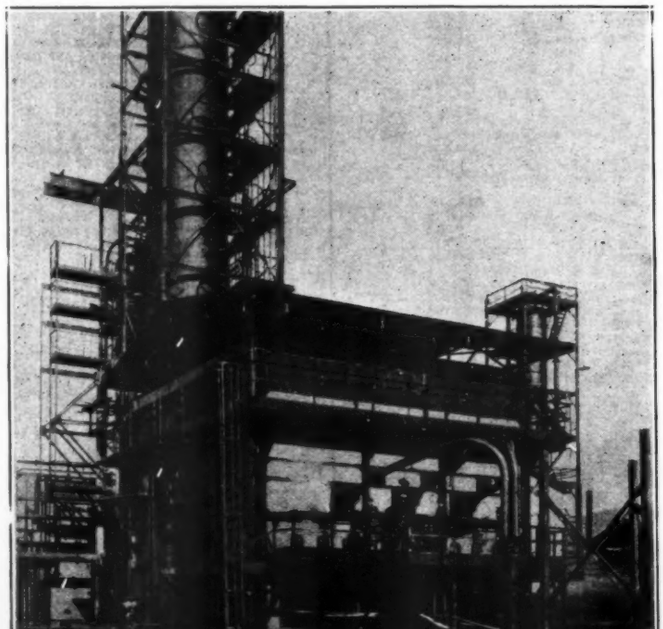
(Continued from Page 97)

the business completely, and the refinery was operated as a unit of Union Petroleum. At that time A. C. Woodman became president, Otto Walchli (present superintendent of the refinery for Sinclair), vice president, W. J. Richardson, treasurer, and R. A. Lish, secretary.

Three years later, in 1921, Sinclair Consolidated Oil Corp. acquired the business of Union Petroleum Co. of Pennsylvania, and with this transaction the Wellsville refinery came into the Sinclair fold.

Following its acquisition by Sinclair, the plant ran on in much the same fashion as under Union management, until its equipment became more or less antiquated. In 1927, Sinclair interests, after determining to their satisfaction that ample crude supplies might be looked for in the Wellsville territory for some years to come, initiated a program of modernization at the Wellsville refinery. This program is now drawing to a close and has resulted in the establishment at Wellsville of a lub oil refinery, running exclusively on Pennsylvania Grade oil, without equal in the industry.

The first step in the expansion program was taken in 1927, when a tube still with a fractionating tower was built. This addition, a single flash still, was an innovation in the refining of Pennsylvania Grade crude, and was the first of its type in the East. This still worked out so satisfactorily that most of the other refineries running Pennsylvania Grade crude are now similarly equipped. There followed the addition of other equipment, previously outlined, which has now brought the refinery capacity up to 10,000 bbls. per day.



*Firing end of Foster Wheeler pipe still showing coal pulverizer at bottom and curved pipes conveying coal to burners.*

## MINOR CHANGES IN REFINERY MARKETS

(Continued from Page 36)

service station schedule as posted by the larger distributors.

For the sellers, it can be said that these contracts are liberal enough under normal conditions. Refiners hesitate to give more liberal terms, expecting a more normal relationship between refinery, tank car and tank wagon prices, the coming year. The result will probably be, that many contracts will not be renewed at the start of the year, both buyers and sellers being willing to trade on a day-to-day spot basis until it is apparent what the price trend will be over the remainder of the year.

**Gasoline and Naphtha**

U. S. Motor gasoline in Oklahoma is selling direct to the trade at a price range of 4 to 5¼ cents. The bulk of the movement is between the two extremes. There is no disposition to store gasoline on the part of either the large or small refiners. Several of the latter are pursuing a policy of moving their gasoline output from week to week and almost day to day, in some cases. A substantial part of this business is being handled through brokers at low prices.

Oklahoma refiners state that they continue to have stiff competition from refiners in other sections who are quoting on a Group 3 basis. The domestic movement of the higher gravities is slow.

In the export end, there has been some small sales of the higher gravities but refining groups outside of Oklahoma and Kansas have been getting this business due to the freight rate advantage. One sale of 64-66 375 at 4⅝ cents North Texas was reported last week.

The low export prices now in effect at Coastal points have stimulated interest in that market and there has been some improvement in the actual movement. Some observers feel that the demand will continue to improve. It is believed that the foreign buyers reduced their purchases during the fall months in expectation of lower prices and are now willing to buy to take care of the current demand.

With the U. S. Motor grade quoted at 5¼ cents and the 64-66 375 at 6¼ cents with some sales reported under these figures, this export business even if it increases in volume, means little to Oklahoma and other Mid-Continent refiners. With a 2-cent differential between Gulf Coast and Mid-Continent prices to cover freight and handling charges, the net back to the inland refiners is such that they cannot participate except at large losses in their plant operations.

**Kerosene and Distillate**

Kerosene and the higher gravity grades of furnace oil distillate can be considered together in a market discussion, for there is little difference in prices. The slow demand for the finished grades of kerosene and the steady demand for the better grades of furnace oils, has resulted in a situation in which sellers are overlapping the two in their sales.

Instead of attempting to get the maximum yield of kerosene as is customary under ordinary market conditions, many operators have reduced their yields to take care of a few regular customers and are using the rest of the kerosene distillate cut to blend back with their furnace oil stocks. Cold weather has increased the demand for all grades of furnace oil.

The low cold test grades of distillate of from 36° to 40° gravity are bringing a minimum of 2¾ cents. The 41-43 water white kerosene is available as low as 3 cents and the 42-44 grade at 3¼ cents. The top prices on these kerosenes are one-half cent above these lows.

**Fuel Oil**

As reported by representative refiners and buyers there is a "fair" to "strong" demand for low cold test fuel oils, especially the gravities above 20. There is practically no demand for the high cold test fuels. A 30 cold test fuel oil of 22 gravity was available in Oklahoma the first of the week at 40 cents. The same gravity in a zero to 10 cold test brought a low of 55 cents.

The same price range was in effect in other gravities. A 28 gravity recycle stock with a flash of 225 brought 2⅛ cents a gallon.

**Gas Oil**

U.G.I. gas oil is available at a low of 2 cents with plenty of material available at 2⅛ cents. The better grades of gas oil range up to 2⅝ cents. Several refiners have developed special grades from their cracking operations for which they are having a ready market at 2⅜ to 2½ cents.

**Lubricants and Wax**

Nothing new of importance developed in the lub oil and wax market. Trading is largely confined to regular purchases and on new accounts, price cutting is the rule.

**Natural Gasoline**

Natural gasolines are weak due to a sluggish demand. Grade A sold at 4 cents the first of the week and Grade AA was moving slowing at a low of 3⅞ cents. Grade BB was freely available at 3⅝ to 3¾ cents and Grade C was offered at 3½ cents.

## CALIFORNIA CRUDE OIL PRICES

(Continued from Page 185)

Column 4—Oil below 14 gravity posted at 45 cents.
Column 5—Posted by General Petroleum Co.
Kettleman Hills—Union Oil Co., September 22, 35 to 39 gravity, $1.10; 40 to 44 gravity, $1.20; 45 to 49 gravity, $1.35; 50 to 54 gravity, $1.50; 55 gravity and above, $1.65. Standard Oil Co. of California, 55 gravity and above, $1.65.
Column 5—Price change posted by Standard of California September 16.
Column 6—Oil below 14 gravity posted at 45 cents.
Column 8—Posted by General Petroleum Co.
Kettleman Hills—Union Oil Co., September 22, 35 to 39 gravity, $1.10; 40 to 44 gravity, $1.20; 45 to 49 gravity, $1.35; 50 to 54 gravity, $1.50; 55 gravity and above, $1.65. Standard Oil Co. of California, 55 gravity and above, $1.65.

# BUREAU OF MINES REPORT FOR OCTOBER, 1930*

## SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 | Sept., 1930* | Oct., 1929 | Jan.-Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|
| NEW SUPPLY: | | | | | |
| Domestic production: | | | | | |
| Crude petroleum | 72,696 | 70,977 | 88,430 | 761,106 | 847,648 |
| Daily average | 2,345 | 2,366 | 2,853 | 2,504 | 2,788 |
| Natural gasoline | 4,326 | 4,079 | 4,912 | 43,300 | 43,310 |
| Benzol | 204 | 202 | 265 | 2,319 | 2,572 |
| Total production | 77,226 | 75,258 | 93,607 | 806,725 | 893,530 |
| Daily average | 2,491 | 2,509 | 3,020 | 2,654 | 2,939 |
| Imports: | | | | | |
| Crude petroleum | 5,061 | 5,808 | 5,766 | 52,935 | 68,493 |
| Refined products | 3,799 | 3,614 | 3,643 | 37,369 | 24,047 |
| Total new supply, all oils | 86,086 | 84,680 | 103,016 | 897,029 | 986,070 |
| Daily average | 2,777 | 2,823 | 3,323 | 2,951 | 3,244 |
| Increase in stocks, all oils | †3,678 | †7,885 | 4,579 | †14,872 | 67,740 |
| DEMAND: | | | | | |
| Total demand | 89,764 | 92,565 | 98,437 | 911,901 | 918,330 |
| Daily average | 2,896 | 3,086 | 3,175 | 2,999 | 3,021 |
| Exports: | | | | | |
| Crude petroleum | 2,167 | 1,961 | 2,869 | 20,602 | 21,733 |
| Refined products | 11,803 | 8,753 | 13,984 | 115,455 | 113,833 |
| Domestic demand | 75,794 | 81,851 | 81,584 | 755,844 | 782,764 |
| Daily average | 2,445 | 2,728 | 2,632 | 2,552 | 2,575 |
| Excess of daily average domestic production over domestic demand | 46 | ‡219 | 388 | 102 | 364 |
| STOCKS (end of month): | | | | | |
| Crude petroleum: | | | | | |
| East of California | 375,462 | 376,439 | 390,825 | 375,462 | 390,825 |
| California§ | 143,381 | 144,229 | 154,361 | 143,381 | 154,361 |
| Total crude | 518,843 | 520,668 | 545,186 | 518,843 | 545,186 |
| Natural gasoline at plants | 559 | 534 | 490 | 559 | 490 |
| Refined products | 154,892 | 156,770 | 143,074 | 154,892 | 143,074 |
| Grand total stocks, all oils | 674,294 | 677,972 | 688,750 | 674,294 | 688,750 |
| Days' supply | 223 | 220 | 217 | 225 | 228 |
| Bunker oil (included above in domestic demand) | 4,463 | 4,333 | 4,540 | 43,111 | 44,068 |

*Revised. †Decrease. ‡Deficiency. §Includes residual fuel oil.

## PRODUCTION OF CRUDE PETROLEUM BY STATES

(Thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 Total | Oct., 1930 Dly. av. | Sept., 1930 | Oct., 1929* | Jan. Oct., 1930 | Jan. Oct., 1929* |
|---|---|---|---|---|---|---|
| Arkansas | 1,602 | 51 | 1,573 | 1,930 | 16,567 | 21,270 |
| California: | | | | | | |
| Long Beach | 3,041 | 98 | 3,013 | 5,046 | 30,767 | 53,774 |
| Santa Fe Springs | 2,936 | 95 | 3,059 | 8,319 | 38,772 | 66,446 |
| Rest of State | 12,267 | 395 | 11,912 | 13,539 | 122,664 | 129,270 |
| Total California | 18,244 | 588 | 17,984 | 26,904 | 192,203 | 249,490 |
| Colorado | 135 | 4 | 128 | 176 | 1,386 | 2,028 |
| Illinois | 425 | 14 | 405 | 566 | 4,921 | 5,323 |
| Indiana: | | | | | | |
| Southwestern | 70 | 2 | 69 | 78 | 804 | 762 |
| Northeastern | 5 | ..... | 5 | 5 | 46 | 53 |
| Total Indiana | 75 | 2 | 74 | 83 | 850 | 815 |
| Kansas | 3,454 | 111 | 3,484 | 3,681 | 35,222 | 35,902 |
| Kentucky | 606 | 19 | 619 | 810 | 6,289 | 6,341 |
| Louisiana: | | | | | | |
| Gulf Coast | 809 | 26 | 755 | 706 | 6,808 | 6,230 |
| Rest of State | 1,318 | 43 | 1,169 | 1,190 | 12,144 | 10,781 |
| Total Louisiana | 2,127 | 69 | 1,924 | 1,896 | 18,952 | 17,011 |
| Michigan | 225 | 7 | 185 | 522 | 2,979 | 3,655 |
| Montana | 239 | 8 | 266 | 339 | 2,607 | 3,365 |
| New Mexico | 1,260 | 41 | 1,252 | 260 | 7,821 | 1,308 |
| New York | 313 | 10 | 290 | 288 | 3,232 | 2,781 |
| Ohio: | | | | | | |
| Central and Eastern | 444 | 14 | 420 | 468 | 4,425 | 4,398 |
| Northwestern | 110 | 4 | 108 | 129 | 1,129 | 1,269 |
| Total Ohio | 554 | 18 | 528 | 597 | 5,554 | 5,667 |
| Oklahoma: | | | | | | |
| Oklahoma City | 2,692 | 87 | 2,793 | 1,422 | 27,851 | 4,761 |
| Seminole | 5,283 | 171 | 5,174 | 10,453 | 67,505 | 117,697 |
| Rest of State | 8,879 | 286 | 8,507 | 8,864 | 89,692 | 93,063 |
| Total Oklahoma | 16,854 | 544 | 16,474 | 20,739 | 185,048 | 215,521 |
| Pennsylvania | 1,008 | 33 | 920 | 1,120 | 10,975 | 9,657 |
| Tennessee | 1 | ..... | 1 | 2 | 14 | 18 |
| Texas: | | | | | | |
| Gulf Coast | 4,828 | 156 | 4,942 | 4,705 | 51,868 | 40,209 |
| West Texas | 8,435 | 272 | 8,072 | 11,264 | 93,017 | 111,982 |
| Rest of State | 10,352 | 334 | 9,969 | 10,354 | 102,250 | 94,526 |
| Total Texas | 23,615 | 762 | 22,983 | 26,323 | 247,135 | 246,717 |
| West Virginia | 420 | 14 | 374 | 511 | 4,359 | 4,659 |
| Wyoming: | | | | | | |
| Salt Creek | 876 | 28 | 861 | 993 | 8,840 | 9,501 |
| Rest of State | 663 | 22 | 652 | 689 | 6,142 | 6,608 |
| Total Wyoming | 1,539 | 50 | 1,513 | 1,682 | 14,982 | 16,109 |
| Total United States | 72,696 | 2,345 | 70,977 | 88,430 | 761,106 | 847,648 |

*Includes Alaska and Utah.

## PRODUCTION AND DISTRIBUTION OF NATURAL GASOLINE

(Thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 Total | Oct., 1930 Daily av. | Sept., 1930 Total | Sept., 1930 Daily av. | Jan.-Oct., 1930 Total | Jan.-Oct., 1930 Dly. av. |
|---|---|---|---|---|---|---|
| Production | 4,326 | 140 | 4,079 | 136 | 43,300 | 142 |
| Decrease in all stocks | 215 | 7 | 234 | 8 | ..... | ..... |
| Total | 4,541 | 147 | 4,313 | 144 | 43,300 | 142 |
| Blended at refineries | 4,275 | 138 | 3,930 | 131 | 37,534 | 123 |
| Run through pipe lines in California | 78 | 3 | 96 | 3 | 1,518 | 5 |
| Blended at plants* | 18 | 1 | 18 | 1 | 221 | 1 |
| Sold direct to jobbers | 100 | 3 | 200 | 7 | 1,950 | 6 |
| Increase in all stocks | ... | ... | ... | ... | 67 | ... |
| Balance | 70 | 2 | 69 | 2 | 2,010 | 7 |
| Total | 4,541 | 147 | 4,313 | 144 | 43,300 | 142 |

*East of California.

## NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

| | Oct., 1930 | Sept., 1930 | Oct., 1929 | Jan.-Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|
| Oil | 866 | 782 | 1,556 | 10,391 | 13,105 |
| Gas | 282 | 290 | 258 | 2,379 | 2,265 |
| Dry | 549 | 541 | 701 | 5,729 | 6,561 |
| Total | 1,697 | 1,613 | 2,515 | 18,499 | 21,931 |

*From The Oil and Gas Journal and California office of American Petroleum Institute.

*Prepared under the supervision of G. R. Hopkins, Acting Chief Economist, Petroleum Economics Division.

## RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, OCTOBER, 1930*

| | Completions: Oil | Gas | Dry | Total initial prod. (bbls.) | Average initial prod. (bbls.) | Drlg. Oct. 31 |
|---|---|---|---|---|---|---|
| Texas | 261 | 33 | 209 | 207,600 | 800 | 924 |
| Darst Creek | 32 | 0 | 9 | 28,600 | 900 | 9 |
| West Texas | 30 | 0 | 15 | 27,100 | 900 | 172 |
| California | 82 | 0 | 19 | 60,000 | 700 | 437 |
| Long Beach | 12 | 0 | 1 | 8,200 | 700 | 72 |
| Playa Del Rey | 35 | 0 | 2 | 24,500 | 700 | 100 |
| Santa Fe Springs | 9 | 0 | 0 | 1,700 | 200 | ... |
| Oklahoma | 167 | 45 | 83 | 408,400 | 2,400 | 558 |
| Oklahoma County | 66 | 0 | 3 | 351,800 | 5,300 | 187 |
| Pottawatomie-Seminole Counties | 31 | 1 | 8 | 34,700 | 1,100 | 58 |
| New Mexico | 34 | 1 | 4 | 237,600 | 7,000 | 98 |
| Lea County (Hobbs) | 31 | 1 | 1 | 237,300 | 7,700 | 52 |
| Other states | 322 | 203 | 234 | 47,000 | 100 | 1,474 |
| Total United States | 866 | 282 | 549 | 960,700 | 1,100 | 3,491 |

*From The Oil and Gas Journal and California office of American Petroleum Institute.

## COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 Total | Oct., 1930 Dly. av. | Sept., 1930 | Oct., 1929 | Jan.-Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|---|
| CRUDE PETROLEUM— | | | | | | |
| Runs to stills: | | | | | | |
| Domestic | 68,743 | 2,218 | 71,042 | 82,722 | 734,260 | 761,348 |
| Foreign | 5,273 | 170 | 4,908 | 5,668 | 51,296 | 64,636 |
| Total | 74,016 | 2,388 | 75,950 | 88,390 | 785,556 | 825,984 |
| Imports | 5,061 | 163 | 5,808 | 5,766 | 52,935 | 68,493 |
| Exports | 2,167 | 70 | 1,961 | 2,869 | 20,602 | 21,733 |
| GASOLINE: | | | | | | |
| Production* | 37,400 | 1,206 | 36,944 | 40,246 | 373,566 | 363,959 |
| Imports | 1,620 | 52 | 1,538 | 1,026 | 14,884 | 7,134 |
| Exports† | 6,323 | 204 | 4,029 | 6,099 | 57,545 | 51,835 |
| Stocks‡ | 38,684 | ..... | 38,254 | 35,116 | 38,684 | 35,116 |
| Domestic demand | 32,267 | 1,041 | 37,823 | 33,238 | 335,482 | 317,234 |
| KEROSENE: | | | | | | |
| Production | 3,876 | 125 | 3,846 | 5,162 | 42,043 | 46,368 |
| Imports | 1 | ..... | 35 | 10 | 163 | 154 |
| Exports | 1,416 | 46 | 1,372 | 2,252 | 14,675 | 17,022 |
| Stocks | 7,633 | ..... | 7,771 | 8,515 | 7,633 | 8,515 |
| Domestic demand | 2,599 | 84 | 2,768 | 2,974 | 28,993 | 29,986 |
| GAS OIL AND DISTILLATE FUELS: | | | | | | |
| Production | 7,167 | 231 | 7,051 | ..... | 67,335 | ..... |
| Stocks | 19,258 | ..... | 19,371 | ..... | 19,258 | ..... |
| RESIDUAL FUEL OILS: | | | | | | |
| Production | 22,651 | 731 | 22,872 | ..... | 247,089 | ..... |
| Stocks§ | 22,035 | ..... | 22,109 | ..... | 22,035 | ..... |
| GAS OIL AND FUEL OIL: | | | | | | |
| Production | 29,818 | 962 | 29,923 | 39,048 | 314,424 | 376,464 |
| Imports | 2,165 | 70 | 2,035 | 2,589 | 22,072 | 16,597 |
| Exports | 3,032 | 98 | 2,373 | 4,057 | 31,381 | 31,659 |
| Stocks | 41,293 | ..... | 41,480 | 38,717 | 41,293 | 38,717 |
| LUBRICANTS: | | | | | | |
| Production | 2,546 | 82 | 2,723 | 2,885 | 29,283 | 29,039 |
| Imports | 2 | ..... | 2 | 2 | 22 | 54 |
| Exports | 734 | 24 | 685 | 1,076 | 8,515 | 9,358 |
| Stocks | 10,502 | ..... | 10,257 | 8,021 | 10,502 | 8,021 |
| Domestic demand | 1,569 | 51 | 1,944 | 1,379 | 18,557 | 20,034 |
| WAX (thousands of pounds): | | | | | | |
| Production | 38,080 | 1,228 | 43,960 | 56,377 | 475,720 | 530,195 |
| Imports | 3,182 | 103 | 913 | 4,281 | 23,145 | 34,391 |
| Exports | 31,727 | 1,023 | 30,175 | 39,092 | 241,639 | 266,252 |
| Stocks | 240,060 | ..... | 248,940 | 190,727 | 240,060 | 190,727 |
| Domestic demand | 18,415 | 594 | 20,748 | 18,158 | 206,758 | 220,161 |
| COKE (short tons): | | | | | | |
| Production | 177,300 | 5,719 | 170,200 | 172,200 | 1,610,500 | 1,494,700 |
| Stocks | 1,044,900 | ..... | 1,044,800 | 733,100 | 1,044,900 | 733,100 |
| ASPHALT (short tons): | | | | | | |
| Production | 306,000 | 987 | 306,400 | 355,600 | 2,820,400 | 3,033,700 |
| Stocks | 267,100 | ..... | 269,600 | 227,400 | 267,100 | 227,400 |
| ROAD OIL: | | | | | | |
| Production | 248 | 8 | 550 | ..... | 4,803 | ..... |
| Stocks | 287 | ..... | 307 | 789 | 287 | 8,533 |
| MISCELLANEOUS: | | | | | | |
| Production | 724 | 23 | 835 | 687 | 6,521 | 687 |
| Stocks | 591 | ..... | 554 | ..... | 591 | ..... |

*Includes benzol production and natural gasoline used elsewhere than at refineries east of California. †Includes benzol. ‡Includes motor fuel blends held at natural gasoline plants. §East of California.

## INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM, EAST OF CALIFORNIA

(Thousands of barrels of 42 U. S. gallons)

| Domestic petroleum by fields of origin: | Oct., 1930 Total | Oct., 1930 Dly. av. | Sept., 1930* Total | Sept., 1930* Dly. av. | Jan. Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|---|
| Appalachian: | | | | | | |
| Pennsylvania grade | 1,948 | 63 | 2,274 | 76 | 20,091 | 27,986 |
| Other (inc. Kentucky) | 760 | 25 | 802 | 27 | 8,245 | |
| Lima-N. E. Ind.-Mich. | 389 | 13 | 236 | 8 | 3,344 | 5,640 |
| Ill.-S. W. Ind. | 406 | 13 | 698 | 23 | 6,100 | 7,079 |
| Mid-Continent: | | | | | | |
| N. La. and Ark. | 3,530 | 114 | 2,918 | 97 | 30,063 | 478,525 |
| W. Tex.-S. E. New Mex. | 9,945 | 321 | 11,129 | 371 | 107,568 | |
| Other (Okla., Kans., N. Tex., etc.) | 30,328 | 978 | 33,050 | 1,102 | 324,195 | |
| Gulf Coast: | | | | | | |
| Grade A | 3,356 | 108 | 3,164 | 105 | 29,943 | 43,830 |
| Grade B | 2,647 | 85 | 2,221 | 74 | 30,077 | |
| Rocky Mountain | 1,964 | 63 | 1,696 | 56 | 19,683 | 23,537 |
| California | 8 | .. | 16 | 1 | 209 | ..... |
| Total demand | 55,281 | 1,783 | 58,204 | 1,940 | 579,518 | 586,597 |
| Exports | 1,800 | 58 | 1,507 | 50 | 13,868 | 15,309 |
| Domestic demand | 53,481 | 1,725 | 56,697 | 1,890 | 565,650 | 571,288 |
| Foreign petroleum | 5,212 | 168 | 5,818 | 194 | 54,418 | 68,637 |
| Total domestic demand east of California | 58,693 | 1,893 | 62,515 | 2,084 | 620,068 | 639,925 |

*Revised.

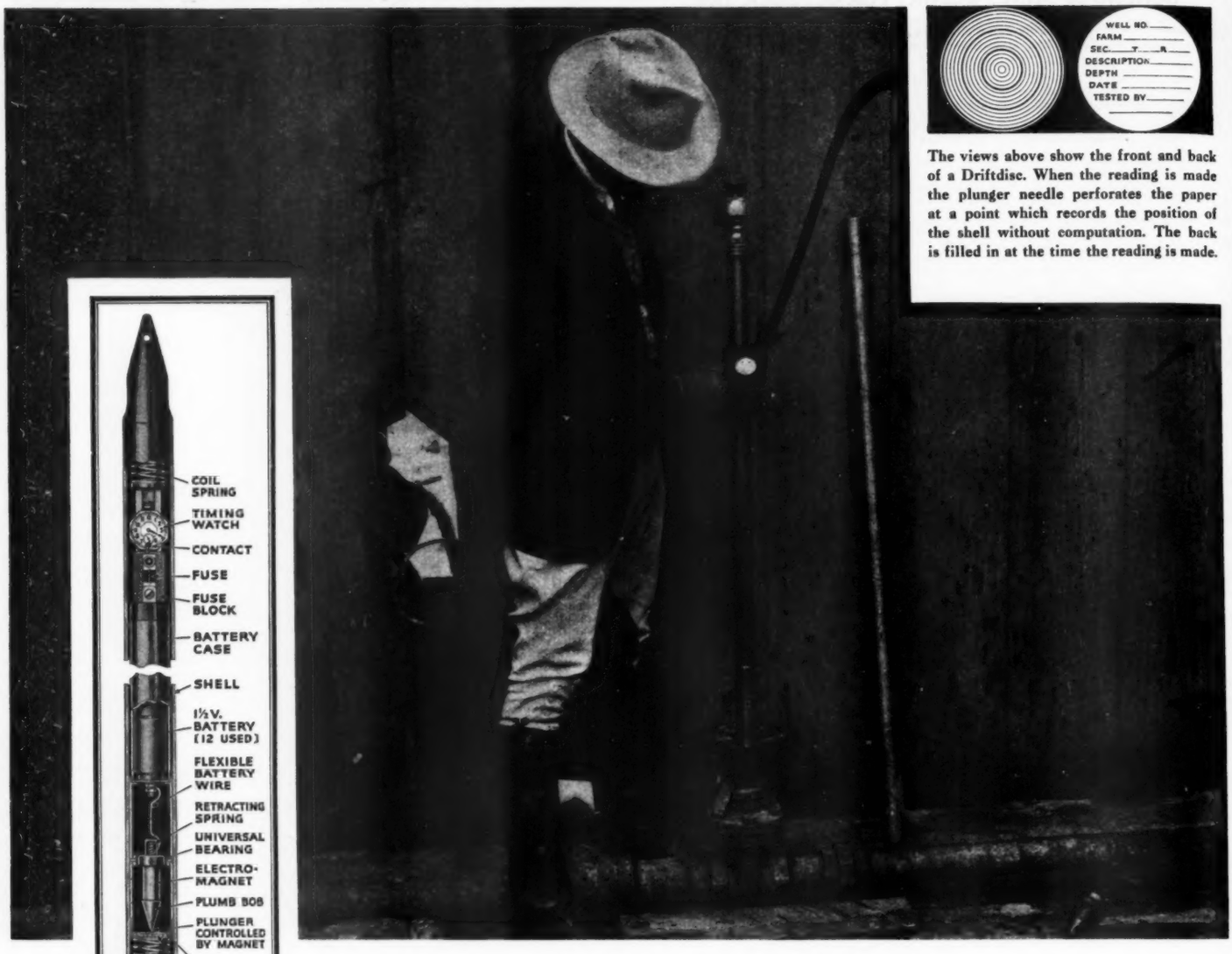
## PRODUCTION OF MOTOR FUEL

(Thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 Total | Oct., 1930 Daily av. | Sept., 1930 | Oct., 1929 | Jan.-Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|---|
| Gasoline produced at refineries: | | | | | | |
| Straightrun | 18,298 | 590 | 18,220 | 21,702 | 192,656 | 205,119 |
| Cracked | 14,427 | 465 | 14,278 | 13,352 | 137,368 | 116,933 |
| Natural gasoline: | | | | | | |
| Blended at refineries | 4,275 | 138 | 3,930 | 4,622 | 37,534 | 36,215 |
| Run through pipe lines* | 78 | 3 | 96 | 207 | 1,518 | 2,048 |
| Total | 37,078 | 1,196 | 36,524 | 39,883 | 369,076 | 360,315 |
| Other natural gasoline: | | | | | | |
| Blended at plants† | 18 | 1 | 18 | 48 | 221 | 572 |
| Sold direct to jobbers | 100 | 3 | 200 | 50 | 1,950 | 500 |
| Benzol produced‡ | 204 | 6 | 202 | 265 | 2,319 | 2,572 |
| Total motor fuel | 37,400 | 1,206 | 36,944 | 40,246 | 373,566 | 363,959 |

*To refineries in California. †East of California. ‡Estimated with production of by-product coke as a basis.

(Continued from Page 158)







The views above show the front and back of a Driftdisc. When the reading is made the plunger needle perforates the paper at a point which records the position of the shell without computation. The back is filled in at the time the reading is made.

# CAN YOU AFFORD
## TO PUMP OIL FROM CROOKED WELLS
### *at the present market prices for crude?*

When you consider the expense of frequent tubing jobs, greater power requirements, excessive wear and tear on the entire pumping equipment, then the appalling waste due to crooked holes becomes apparent.

The contributing causes of crooked hole drilling are many, but there is ONE sure ACCURATE way to avoid them. DRIFTMETER JUNIOR measures the angular deflection of oil wells at any depth for a few cents per reading. No previous experience is necessary to operate the Driftmeter Junior, which is delivered complete and ready to operate for $200.00 F.O.B. Tulsa.

DRIFTMETER, Inc.
616 Exchange Bank Bldg.,
Tulsa, Oklahoma

Please send literature about Driftmeter Junior to

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Write us for complete information and operating instructions. Use the coupon.

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HOUSTON, TEXAS
The Thrift Corp.
M&M Bldg.

OKLAHOMA CITY, OKLA.
W. E. Parkening
920 E. 20th St.; Phone 5-3161

## BUREAU OF MINES REPORT FOR OCTOBER, 1930

### IMPORTS AND EXPORTS OF CRUDE PETROLEUM AND MAJOR REFINED PRODUCTS*

(Thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 Total | Oct., 1930 Daily av. | Sept., 1930 | Oct., 1929 | Jan.-Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|---|
| CRUDE PETROLEUM: | | | | | | |
| Imports | 5,061 | 163 | 5,808 | 5,766 | 52,935 | 68,493 |
| From Mexico | 1,043 | 34 | 995 | 1,043 | 8,534 | 11,243 |
| From Venezuela | 2,458 | 79 | 3,140 | 3,022 | 30,129 | 44,266 |
| From Colombia | 1,190 | 38 | 1,449 | 1,591 | 11,966 | 10,504 |
| From other countries | 370 | 12 | 224 | 110 | 2,306 | 2,480 |
| Exports: | | | | | | |
| Domestic crude oil | 2,167 | 70 | 1,961 | 2,869 | 20,602 | 21,733 |
| To Canada | 1,675 | 54 | 1,722 | 2,592 | 16,390 | 18,532 |
| To other countries | 492 | 16 | 239 | 277 | 4,211 | 3,194 |
| Shipments | .... | ..... | ..... | ..... | 1 | 7 |
| Foreign crude oil | ..... | ..... | ..... | ..... | ..... | ..... |
| REFINED PRODUCTS: | | | | | | |
| Gasoline: | | | | | | |
| Imports | 1,620 | 52 | 1,538 | 1,026 | 14,884 | 7,134 |
| Exports† | 6,323 | 204 | 4,029 | 6,099 | 57,545 | 51,835 |
| To United Kingdom | 2,099 | 68 | 955 | 1,496 | 17,418 | 14,225 |
| To France | 1,063 | 34 | 419 | 725 | 8,150 | 7,180 |
| To Canada | 388 | 13 | 468 | 595 | 3,750 | 4,541 |
| To other countries | 2,642 | 85 | 2,070 | 3,197 | 27,202 | 24,779 |
| Shipments | 131 | 4 | 117 | 86 | 1,025 | 1,110 |
| Kerosene: | | | | | | |
| Exports | 1,416 | 46 | 1,372 | 2,252 | 14,675 | 17,022 |
| To China | 118 | 4 | 205 | 448 | 2,242 | 3,024 |
| To United Kingdom | 213 | 7 | 248 | 357 | 2,392 | 2,285 |
| To other countries | 1,070 | 35 | 896 | 1,432 | 9,817 | 11,533 |
| Shipments | 15 | ..... | 23 | 15 | 224 | 180 |
| Gas oil and fuel oil: | | | | | | |
| Imports | 2,165 | 70 | 2,035 | 2,589 | 22,072 | 16,597 |
| Exports | 3,032 | 98 | 2,373 | 4,057 | 31,381 | 31,659 |
| To Chile | 378 | 12 | 417 | 677 | 3,752 | 4,999 |
| To Panama | 395 | 13 | 183 | 356 | 2,718 | 2,557 |
| To other countries | 1,672 | 54 | 1,724 | 2,782 | 21,358 | 21,488 |
| Shipments | 587 | 19 | 49 | 242 | 3,553 | 2,615 |
| Lubricants: | | | | | | |
| Exports | 734 | 24 | 685 | 1,076 | 8,515 | 9,358 |
| To United Kingdom | 129 | 4 | 140 | 194 | 1,672 | 1,623 |
| To France | 112 | 4 | 70 | 273 | 1,279 | 1,478 |
| To other countries | 489 | 16 | 464 | 601 | 5,489 | 6,179 |
| Shipments | 4 | ..... | 11 | 8 | 75 | 78 |
| Wax (thousands of pounds): | | | | | | |
| Imports | 3,182 | 103 | 913 | 4,281 | 23,145 | 34,391 |
| Exports | 31,727 | 1,023 | 30,175 | 39,092 | 241,640 | 266,252 |
| To United Kingdom | 9,221 | 297 | 8,614 | 10,178 | 64,280 | 65,027 |
| To Italy | 3,200 | 103 | 8,088 | 4,527 | 35,750 | 25,793 |
| To other countries | 19,300 | 623 | 13,468 | 24,386 | 141,582 | 175,393 |
| Shipments | 6 | ..... | 5 | 1 | 28 | 39 |

*From Bureau of Foreign and Domestic Commerce. †Includes benzol—59,000 bbls. in October, 1930.

### SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN UNITED STATES*

(Thousands of barrels of 42 U. S. gallons)

| | Oct., 1930 | Sept., 1930 | Oct., 1929 | Jan.-Oct., 1930 | Jan.-Oct., 1929 |
|---|---|---|---|---|---|
| Crude oil | ..... | ..... | ..... | ..... | 1,299 |
| Refined products | 2,389 | 1,983 | 2,886 | 21,191 | 22,674 |
| Gasoline | 1,775 | 1,706 | 2,299 | 17,361 | 19,376 |
| Kerosene | ..... | ..... | 54 | 180 | 126 |
| Gas oil | 605 | 272 | 491 | 3,279 | 2,778 |
| Diesel oil | ..... | ..... | ..... | 208 | 98 |
| Fuel oil | 3 | 2 | 28 | 30 | 101 |
| Lubricants | 4 | 1 | 12 | 116 | 171 |
| Asphalt | 2 | 2 | 2 | 17 | 24 |

*Compiled by E. T. Knudsen of the San Francisco office of the Bureau of Mines.

### GASOLINE PRODUCTION BY THE VARIOUS METHODS—OCTOBER, 1930

(Thousands of barrels of 42 U. S. gallons)

| | Straightrun Total | Straightrun % | Cracked Total | Cracked % | Nat. gasoline Total | Nat. gasoline % | Grand total |
|---|---|---|---|---|---|---|---|
| East Coast | 2,672 | 47 | 2,766 | 49 | 195 | 4 | 5,633 |
| Appalachian | 676 | 59 | 405 | 35 | 73 | 6 | 1,154 |
| Ind., Ill., Ky., etc. | 2,268 | 47 | 2,297 | 47 | 273 | 6 | 4,838 |
| Okla., Kans., Mo. | 2,885 | 54 | 1,964 | 37 | 462 | 9 | 5,311 |
| Texas | 3,953 | 45 | 3,745 | 43 | 1,096 | 12 | 8,794 |
| Louisiana and Arkansas | 844 | 36 | 1,176 | 51 | 310 | 13 | 2,330 |
| Rocky Mountain | 408 | 43 | 394 | 41 | 154 | 16 | 956 |
| California | 4,592 | 57 | 1,680 | 21 | 1,790 | 22 | 8,062 |
| Total | 18,298 | 49 | 14,427 | 39 | 4,353 | 12 | 37,078 |
| Texas Gulf Coast | 2,544 | 39 | 3,074 | 48 | 842 | 13 | 6,460 |
| Louisiana Gulf Coast | 619 | 37 | 852 | 51 | 195 | 12 | 1,666 |

### STOCKS HELD BY REFINING COMPANIES, OCTOBER 31, 1930

(Thousands of barrels of 42 U. S. gallons)

| | Gasoline | Kerosene | Gas and fuel oil: Gas oil and distillate fuels | Gas and fuel oil: Residual fuel oils | Gas and fuel oil: Total |
|---|---|---|---|---|---|
| East Coast | 5,715 | 1,663 | 5,394 | 6,005 | 11,399 |
| Appalachian | 957 | 173 | 614 | 605 | 1,219 |
| Indiana, Illinois, Kentucky, etc. | 4,618 | 648 | 1,680 | 2,214 | 3,894 |
| Oklahoma, Kansas, Missouri | 2,903 | 657 | 2,138 | 3,202 | 5,340 |
| Texas | 6,642 | 1,566 | 3,453 | 7,481 | 10,934 |
| Louisiana and Arkansas | 1,070 | 916 | 698 | 1,526 | 2,224 |
| Rocky Mountain | 1,681 | 246 | 119 | 1,002 | 1,121 |
| California | 15,086 | 1,764 | 5,162 | (*) | 5,162 |
| Total | 38,672 | 7,633 | 19,258 | 22,035 | 41,293 |
| Texas Gulf Coast | 4,832 | 1,469 | 3,080 | 4,462 | 7,542 |
| Louisiana Gulf Coast | 820 | 895 | 502 | 873 | 1,375 |

| | Lubricants | Wax (thousands of pounds): Crude scale | Wax: Refined | Wax: Total | Coke (tons) |
|---|---|---|---|---|---|
| East Coast | 3,223 | 47,590 | 16,781 | 64,371 | 50,900 |
| Appalachian | 1,313 | 25,134 | 3,431 | 28,565 | 6,800 |
| Indiana, Illinois, Kentucky, etc. | 1,081 | 18,360 | 3,110 | 21,470 | 138,100 |
| Oklahoma, Kansas, Missouri | 848 | 2,965 | 2,272 | 5,237 | 87,200 |
| Texas | 2,448 | 982 | 7,384 | 8,367 | 475,700 |
| Louisiana and Arkansas | 169 | 87,483 | 1,451 | 88,934 | 37,400 |
| Rocky Mountain | 183 | 21,745 | 1,371 | 23,116 | 127,100 |
| California | 1,227 | ..... | ..... | ..... | 121,700 |
| Total | 10,502 | 204,260 | 35,800 | 240,060 | 1,044,900 |
| Texas Gulf Coast | 2,342 | 921 | 7,384 | 8,305 | 435,800 |
| Louisiana Gulf Coast | 155 | 87,483 | 1,451 | 88,934 | 37,300 |

| | Asphalt (tons) | Other finished products: Road oil | Other finished products: Miscellaneous | Other finished products: Total | Unfinished oils: Natural gasoline | Unfinished oils: Other | Unfinished oils: Total |
|---|---|---|---|---|---|---|---|
| East Coast | 95,100 | 31 | 47 | 78 | 34 | 9,547 | 9,581 |
| Appalachian | 5,900 | .. | 70 | 70 | 10 | 1,445 | 1,455 |
| Ind., Ill., Ky., etc. | 55,700 | 45 | 301 | 346 | 42 | 5,008 | 5,050 |
| Okla., Kans., Mo. | 5,500 | 36 | 19 | 55 | 19 | 3,010 | 3,029 |
| Texas | 8,600 | 11 | 15 | 26 | 261 | 14,575 | 14,836 |
| Louisiana and Arkansas | 39,400 | 2 | 8 | 10 | 22 | 3,158 | 3,180 |
| Rocky Mountain | 4,000 | 32 | 23 | 55 | 2 | 1,738 | 1,740 |
| California | 52,900 | 130 | 108 | 238 | 1,407 | †7,969 | 9,376 |
| Total | 267,100 | 287 | 591 | 878 | 1,797 | 46,450 | 48,247 |
| Texas Gulf Coast | 8,500 | 11 | 4 | 15 | 240 | 12,765 | 13,005 |
| Louisiana Gulf Coast | 35,700 | .. | 8 | 8 | 8 | 2,447 | 2,455 |

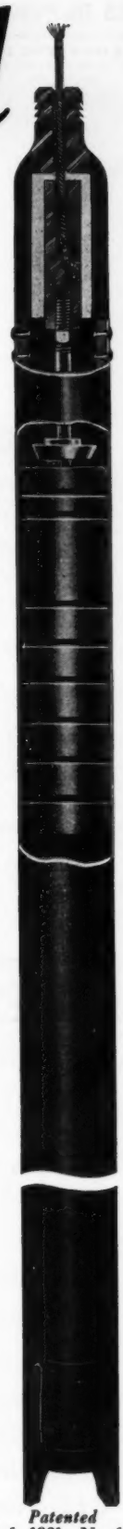
*Included with heavy crude. †Includes 2,409,000 bbls. tops.

(Continued on Next Page)


# Miller

## SAND PUMP

*With a type bottom to meet every* requirement

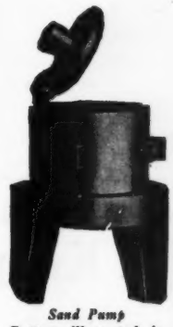


YOU can equip your Miller Sand Pump with a type bottom to exactly fit your present requirements and then quickly change to any of the four type bottoms that meet the working conditions of every well.

Only in the Miller do you get the exclusive construction by which the wire line connects directly to the plunger permitting use of a 25 or 30 foot tube eliminating use of a rod, the sand pump that is the field man's choice. It is made to stand abuse. All steel throughout, eliminating use of leather washers.

Furnished with various type bottoms, illustrated to meet any condition. Made in 2½, 3, 3½, 4, 4½, 5, 5½, 7 and 9-inch diameters and 20, 25 and 30-foot lengths. Send for circulars and price list. The Miller Sand Pump is sold by leading supply stores everywhere.

*Chisel Bottom*
will save the expense of running tools and its chisel shape breaks up tightly packed sands.



*Sand Pump*
Bottom illustrated in position in the pump.

*Bailer Bottom*
will speed up production in cavy holes by time saved in picking up cuttings.

*Patented*
March 1, 1921—No. 1370340
January 20, 1925—No. 1523604

*Star Bottom*
used for cutting the sand loose and preferred by some to the Chisel Bottom.

## MILLER
## *Sand Pump Company*

*(Formerly known as the Miller Combination Bailer & Pump Co.)*

*General Offices and Plant*
SAPULPA, OKLA., U.S.A.

# BUREAU OF MINES REPORT FOR OCTOBER, 1930

## STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

| | Oct. 31, 1930 | Sept. 30, 1930* | Oct. 31, 1929 |
|---|---|---|---|
| EAST OF CALIFORNIA: | | | |
| At refineries by location— | | | |
| East Coast: Domestic | 10,759 | 10,306 | 8,940 |
| Foreign† | 3,423 | 3,668 | 4,138 |
| Appalachian | 2,628 | 2,635 | 2,830 |
| Indiana, Illinois, Kentucky, Michigan, etc. | 3,053 | 2,978 | 2,859 |
| Oklahoma, Kansas and Missouri | 5,239 | 5,274 | 5,505 |
| Texas: Inland | 1,566 | 1,982 | 1,198 |
| Gulf Coast: Domestic | 9,683 | 8,971 | 10,144 |
| Foreign† | 324 | 317 | 659 |
| Arkansas and inland Louisiana | 968 | 984 | 1,183 |
| Louisiana Gulf Coast: Domestic | 5,803 | 5,736 | 4,122 |
| Foreign | 855 | 768 | 1,574 |
| Rocky Mountain | 1,726 | 1,823 | 1,426 |
| Total | 46,032 | 45,445 | 45,178 |
| At refineries by origin: | | | |
| Pennsylvania Grade | 2,421 | 2,403 | (‡) |
| Other Appalachian (including Kentucky) | 919 | 935 | (‡) |
| Lima, Northeast Indiana, Michigan | 202 | 162 | (‡) |
| Illinois-Southwest Indiana | 87 | 96 | (‡) |
| North Louisiana and Arkansas | 5,182 | 5,268 | (‡) |
| West Texas and southeast New Mexico | 5,010 | 4,866 | (‡) |
| Oklahoma, Kansas, North Texas, etc. | 18,074 | 17,485 | (‡) |
| Gulf Coast: Grade A | 4,137 | 4,253 | (‡) |
| Grade B | 3,671 | 3,402 | (‡) |
| Rocky Mountain | 1,726 | 1,817 | (‡) |
| California | ... | 5 | (‡) |
| Foreign† | 4,602 | 4,753 | 6,371 |
| Total | 46,032 | 45,445 | 45,178 |
| Pipe line and tank farm: | | | |
| Pennsylvania Grade | 5,629 | 5,605 | 4,572 |
| Other Appalachian (including Kentucky) | 950 | 892 | 805 |
| Lima, Northeast Indiana, Michigan | 1,407 | 1,503 | 4:0 |
| Illinois-Southwest Indiana | 10,188 | 10,091 | 10,363 |
| North Louisiana and Arkansas | 20,300 | 20,842 | 21,815 |
| West Texas and southeast New Mexico | 45,870 | 46,357 | 255,935 |
| Oklahoma, Kansas, North Texas, etc. | 195,679 | 195,967 | |
| Gulf Coast: Grade A | 6,338 | 7,096 | 20,700 |
| Grade B | 12,268 | 11,977 | |
| Rocky Mountain | 24,401 | 24,314 | 24,673 |
| Total | 323,030 | 324,644 | 339,333 |
| Total refinery, pipe line and tank farm | 369,062 | 370,089 | 384,511 |
| Producers' | 6,400 | 6,350 | 6,314 |
| Total crude east of California | 375,462 | 376,439 | 390,825 |
| CLASSIFICATION BY GRAVITY (approximately): | | | |
| East of California: Light | 335,208 | 334,479 | 344,195 |
| Heavy | 33,854 | 35,610 | 40,316 |
| California: Light | 40,738 | 40,582 | 42,676 |
| Heavy (including fuel) | 102,643 | 103,647 | 111,685 |

*Revised. †Includes importers' stocks. ‡Not available.

## RUNS TO STILLS AND OUTPUT OF REFINERIES, OCTOBER, 1930

(Thousands of barrels of 42 U. S. gallons)

| | Crude oil | | | Unfinished oils rerun | Natural gasoline | Total input |
|---|---|---|---|---|---|---|
| | Domestic | Foreign | Total | | | |
| East Coast | 9,813 | 4,998 | 14,811 | 908 | 195 | 15,914 |
| Appalachian | 2,455 | ..... | 2,455 | 238 | 73 | 2,766 |
| Indiana, Illinois, Kentucky, etc. | 7,963 | ..... | 7,963 | 249 | 273 | 3,485 |
| Oklahoma, Kansas, Missouri | 8,837 | ..... | 8,837 | 654 | 462 | 9,953 |
| Texas | 17,277 | 56 | 17,333 | 1,985 | 1,096 | 20,414 |
| Louisiana and Arkansas | 4,668 | 219 | 4,887 | 633 | 310 | 5,830 |
| Rocky Mountain | 1,588 | ..... | 1,588 | 155 | 154 | 1,897 |
| California | 16,142 | ..... | 16,142 | 531 | *1,790 | 18,462 |
| Total United States | 68,743 | 5,273 | 74,016 | 5,353 | 4,353 | 82,722 |
| Texas Gulf Coast | 12,626 | 56 | 12,682 | 1,892 | 842 | 15,416 |
| Louisiana Gulf Coast | 2,956 | 219 | 3,175 | 197 | 195 | 3,567 |

| | Gas oils and fuel oils | | | | | |
|---|---|---|---|---|---|---|
| | Gasoline | Kerosene | Gas oil and distillate fuels | Residual fuel oils | Total | Lubricants | Wax* |
| East Coast | 5,633 | 532 | 1,771 | 5,200 | 6,971 | 779 | 15,400 |
| Appalachian | 1,154 | 318 | 171 | 285 | 456 | 402 | 7,000 |
| Ind., Ill., Ky., etc. | 4,838 | 300 | 656 | 1,278 | 1,934 | 270 | 3,360 |
| Okla., Kans., Mo. | 5,311 | 633 | 870 | 2,114 | 2,984 | 241 | 2,800 |
| Texas | 8,794 | 1,137 | 1,642 | 5,027 | 6,669 | 581 | 3,360 |
| Louisiana and Arkansas | 2,330 | 473 | 443 | 1,582 | 2,025 | 60 | 4,480 |
| Rocky Mountain | 956 | 58 | 77 | 335 | 412 | 33 | 1,680 |
| California | 8,062 | 425 | 1,537 | 6,830 | 8,367 | 180 | ..... |
| Total United States | 37,078 | 3,876 | 7,167 | 22,651 | 29,818 | 2,546 | 38,080 |
| Texas Gulf Coast | 6,460 | 999 | 1,236 | 3,229 | 4,465 | 554 | 3,360 |
| Louisiana Gulf Coast | 1,666 | 412 | 241 | 826 | 1,067 | 42 | 4,480 |

*In thousands of pounds.

| | Coke (tons) | Asphalt (tons) | Other finished products: Road oil | Other finished products: Miscellaneous | Other finished products: Total | Unfinished products | Shortage |
|---|---|---|---|---|---|---|---|
| East Coast | 13,100 | 151,600 | 45 | 36 | 81 | 330 | 632 |
| Appalachian | 2,400 | 6,900 | ..... | 30 | 30 | 181 | 159 |
| Ind., Ill., Ky., etc. | 60,200 | 47,100 | 50 | 296 | 346 | 104 | 115 |
| Okla., Kans., Mo. | 31,400 | 2,900 | 23 | 110 | 133 | 14 | 451 |
| Texas | 48,200 | 18,200 | 7 | 10 | 17 | 1,696 | 1,162 |
| Louisiana and Arkansas | 11,900 | 31,500 | ..... | 114 | 114 | 381 | 202 |
| Rocky Mountain | 10,800 | 200 | 9 | 17 | 26 | 270 | 80 |
| California | 200 | 47,600 | 114 | 111 | 225 | 417 | 524 |
| Total United States | 177,300 | 306,000 | 248 | 724 | 972 | 3,393 | 3,316 |
| Texas Gulf Coast | 40,000 | 18,200 | 7 | 2 | 9 | 1,680 | 933 |
| Louisiana Gulf Coast | 10,800 | 22,900 | ..... | 107 | 107 | 5 | 71 |

*Includes 78,000 bbls. run through pipe lines.

## PRODUCTION OF CRUDE PETROLEUM BY FIELDS

(Thousands of barrels of 42 U. S. gallons)

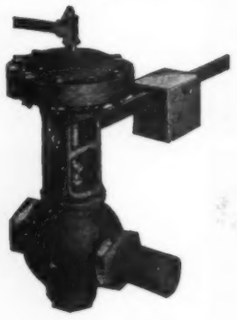
| FIELD: | Oct., 1930 Total | Oct., 1930 Dly. av. | Sept., 1930 | Oct., 1929* | Jan.-Oct., 1930 | Jan.-Oct., 1929* |
|---|---|---|---|---|---|---|
| Appalachian: | | | | | | |
| Pennsylvania grade | 1,990 | 64 | 1,780 | 2,181 | 20,973 | 19,574 |
| Other (inc. Kentucky) | 802 | 26 | 844 | 1,018 | 8,321 | 8,240 |
| Lima-N. E. Ind.-Mich. | 340 | 11 | 298 | 656 | 4,154 | 4,981 |
| Ill.-S. W. Ind. | 495 | 16 | 474 | 644 | 5,725 | 6,085 |
| Mid-Continent: | | | | | | |
| N. La. and Ark. | 2,920 | 94 | 2,742 | 3,120 | 28,711 | 32,051 |
| W. Tex.-S. E. N. Mex. | 9,638 | 311 | 9,264 | 11,448 | 100,329 | 112,792 |
| Other (Okla., Kans., N. Tex., etc.) | 30,660 | 989 | 29,927 | 34,774 | 322,520 | 345,949 |
| Gulf Coast: | | | | | | |
| Grade A | 2,467 | 80 | 2,630 | | 27,240 | |
| Grade B | 3,170 | 102 | 3,067 | 5,411 | 31,436 | 46,433 |
| Rocky Mountain | 1,970 | 64 | 1,967 | 2,274 | 19,494 | 22,007 |
| California | 18,244 | 588 | 17,984 | 26,904 | 192,203 | 249,490 |
| Total | 72,696 | 2,345 | 70,977 | 88,430 | 761,106 | 847,648 |
| CLASSIFICATION BY GRAVITY (approx.): | | | | | | |
| Light crude | 64,490 | 2,080 | 62,557 | 79,440 | 672,716 | 763,580 |
| Heavy crude | 8,206 | 265 | 8,420 | 8,990 | 88,390 | 84,068 |

*Includes Alaska and Utah.


# It Keeps the DISCHARGE

FROM COMPRESSOR

CONSTANT



WHEN discharge pressure rises, suction is throttled. Thus discharge pressure cannot exceed a fixed point.

Built especially for this service, the C-F Throttling Regulator is entirely dependable in uniformity of action. With performance always punctual as well as precise, it permits ideal compressor operating conditions insofar as constant discharge is any factor.

C-F

THROTTLING REGULATOR

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**The Chaplin-Fulton Mfg. Co.**

28-40 PENN AVE. PITTSBURGH, PA.


# Late Fields

(Continued from Page 48)

It was the twenty-first well completed in the Ritz Pool.

The wildcat test of Dixie Oil Co., Amerada Petroleum Corp. and others' No. 1 Misak, SE cor. Section 25-34-6w, Harper County, was drilling in black shale at 5,120 feet, with nothing showing. The Mississippi lime was found from 4,635-5,088 feet.

The new well in the Welch Pool extension, Hipple & Rogers' No. 1 Rainey, Section 3-21-6w, flowed 996 bbls. in 12 hours and 1,444 bbls. in 18 hours, and was averaging 80 bbls. an hour from the chat at 3,368-90 feet.

Shell Petroleum Corp. and others' No. 1 Lehmann, in Section 35-22-2, northeastern Harvey County, was making 12,000,000 feet of gas and spraying oil from the chat at 2,985-87 feet. It is a quarter of a mile east of the same company's No. 1 Palmer, which was a small chat producer.

## OKLAHOMA

Eason Oil Co.'s No. 1 Fish, SE cor. SW SE Section 19-7-8, south of Wewoka in Seminole County, flowed 2,690 bbls. in 24 hours, sand at 3,005-12 feet, and was pinched in. It is the largest well completed in the area which was opened up by the Empire Oil & Refining Co. a few months ago.

The second well was completed in the Wilcox sand in the new area south of Wewoka by the Deep Rock Oil & Refining Co., its No. 2 Douglass (50a), SW cor. NE Section 30-8-8, making 1,475 bbls. in 25 hours from the Wilcox sand at 3,932-55 feet, and was shut in for proration.

Burke-Gries Oil Co.'s No. 2 Henshaw, NW cor. NE SW Section 30-8-8, flowed 2,475 bbls. in 12½ hours from the Cromwell sand at 3,138-58 feet, and was shut in.

Phillips Petroleum Co. and Hicks Drilling Co. and others' No. 1 Crouch, NW cor. SW Section 5-6-5, had Wilcox sand at 4,388-4,406 feet, with a hole full of fluid. The test was carrying a hole full of fluid and no increase was found in the Wilcox sand. The oil showing was found in the Simpson dolomite.

Clark & Cowden's No. 1 Brown, NE cor. SE NE Section 12-4-7, in Pontotoc County, made 700 bbls. in 24 hours after a 5-quart shot in sand at 1,933-50 feet. The well extends production in the Ada district a quarter of a mile.

Irwin and others' No. 1 Jones, SE cor. NE Section 30-5-10, Hughes County wildcat, had water in the Cromwell sand at 4,760-68 feet, and was drilled to a total depth of 4,775 feet. Operators may plug back to 4,270-75 feet, where a showing of gas was found.

Production from the Oklahoma City Pool, for the seven days ending December 9, was as follows:

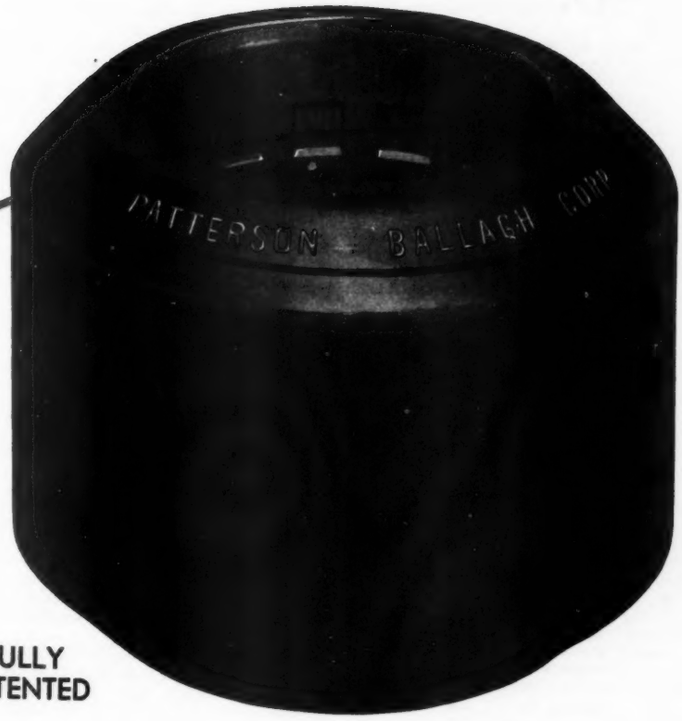
| Date— | Bbls. | Wells prod. | Wells comp. |
|---|---|---|---|
| December 3 | 59,370 | 90 | 659 |
| December 4 | 59,839 | 65 | 661 |
| December 5 | 76,168 | 55 | 661 |
| December 6 | 99,109 | 75 | 662 |
| December 7 | 84,187 | 70 | 663 |
| December 8 | 81,961 | 62 | 664 |
| December 9 | 95,402 | 77 | 664 |

Oils, Inc.'s No. 1 Hathaway, SE cor. SW NW, Section 2-11-3w, in the north end of the Oklahoma City Field, was shut down at 4,690 feet.

Phillips Petroleum Co.'s No. 1 Roose, in Section 2-11-3w, in the north end of the Oklahoma City Field, made 3,405 bbls. in eight hours from sand at 6,130-6,535 feet.

Tom Slick Oil Co.'s No. 3 Campbell, in Section 3-11-3w, made 2,215 bbls. in one hour from sand at 6,285-6,555 feet. The gas volume was estimated at 48,000,000 feet a day.

# Beware of bootleg protectors

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*Oklahoma Distributors:*
Bailey & Becker Company, 410 Thompson Bldg.
Tulsa

# Of Interest to Sales Departments

## Less Crude Imported Into United States In Month of October

WASHINGTON, D. C., Dec. 8.—Imports of petroleum and products in October were in excess of such imports in the previous October, the value being $12,671,709 compared with $12,249,803 in October, 1929, according to the monthly summary of foreign commerce, of the Department of Commerce.

For the 10 months ending with October the value of petroleum and products imported was $125,776,245 an increase over the similar period of 1929 when the value was $122,448,534.

During October 5,061,463 bbls. of crude petroleum valued at $5,270,652 were imported compared with 5,765,593 bbls. valued at $6,224,401 in October, 1929, a decrease of 704,130 bbls.

The importation of crude oil from Mexico showed exactly the same number of barrels (1,043,000) in October, 1930, as in the same month of 1929, but the price paid decreased from $900,404 in October, 1929, to $785,985 in October, 1930. Imports of crude from the Netherland West Indies increased in quantity from 555,719 bbls. in October, 1929, to 739,835 bbls. in October, 1930, and the price for the former quantity was $423,278 and for the latter $558,356.

Colombia imports decreased from 1,591,000 bbls. valued at $2,418,320 in October, 1929, to 1,190,000 bbls. valued at $1,680,800 in October, 1930.

From Peru 140,010 bbls. valued at $315,020 were received with no imports of record for the previous October to make comparison.

Venezuelan oil imported dropped from 2,466,580 bbls. valued at $2,329,338 in October, 1929, to 1,717,874 bbls. valued at $1,669,905 in October, 1930.

The importation of advanced and refined oil showed a slight increase in quantity and a considerable increase in value compared with the previous October. The total of such oil imported in October, 1929, was 3,628,136 bbls. valued at $5,782,249 compared with 3,787,563 bbls. valued at $7,241,133 in October, 1930.

For the 10 months ending with October, 1929, importation of advanced and refined oils totaled 23,924,612 bbls. valued at $51,786,482 compared with 37,288,079 bbls. valued at $69,075,845 in the 10 months ending October, 1930.

The largest quantity of this class of imports consisted of 2,164,799 bbls. of topped including fuel oil valued at $1,619,789, a decrease in quantity and value from imports of October, 1929, of 2,588,812 bbls. valued at $1,917,444. From Mexico came 152,663 bbls., from Netherland West Indies 1,914,525 bbls., and from all other countries came 97,611 bbls. of this class of oil products.

Importation of gasoline, naphtha and other finished light products showed a large increase in October over the same month of the previous year. The quantity was 1,619,577 bbls. valued at $5,586,508 compared with 1,026,140 bbls. valued at $3,790,800 in October, 1929. In the 10 months ending with October these importations of gasoline totaled 14,884,002 bbls., or more than double the quantity imported in the 10 months ending October, 1929, when the total was 7,134,310 bbls. The value of the 1930 gasoline imports for 10 months was $52,111,168 compared with $37,504,162 in the same period of 1929. The greater bulk of this gasoline came from the Netherland West Indies, the quantity being 1,525,265 bbls. valued at $5,163,158 compared with 955,057 bbls. valued at $3,363,462 in October, 1929. From Trinidad and Tobago came only 76,197 bbls.

(Continued on Page 206)

## A.P.I. WILL CONSIDER IMPORTANT CHANGES IN MARKETING PRACTICES

Chairmen of code committees have been notified that the board of directors of the American Petroleum Institute, at the January meeting, will consider changes in the provisions of the National Code of Practices for Marketing Refined Petroleum Products recommended by the division of marketing general committee. The proposed changes affect rules covering commercial discounts and lease and agency agreements.

The recommendations, made by the general committee in the form of resolutions adopted by a majority vote, were not acted upon by the board of directors during the eleventh annual meeting of the Institute at Chicago because of lack of time. They follow:

"Resolved, that the general committee of the division of marketing recommend to the board of directors of the American Petroleum Institute that the last paragraph of Rule 17 and paragraph (e) of Rule 21 of the National Code of Practices for Marketing Refined Petroleum Products be suspended.

"Resolved, that the general committee of the division of marketing recommend to the board of directors of the American Petroleum Institute that the code be interpreted or, if necessary, amended, to incorporate the views and recommendations of its subcommittee's resolution, which reads:

"'Whereas, this committee has been designated to investigate and make recommendations with reference to the lease and agency agreements; and,

"Whereas, it is agreed that under the lease and agency form of agreement dealers are at this time being advanced loans, and improvements otherwise prohibited by the code are being made; and

"Whereas, it is agreed this practice is entirely contrary to the intent and spirit of the Code of Ethics, is uneconomic, and adds substantially and unjustifiably to the cost of marketing;

"Therefore, it is resolved, that this committee recommends that Rules 1 and 10 of the code, and the interpretations thereof, be made applicable to all dealers who sign a lease and agency, lease and license, and or similar form of controlled operation, by which agreement the dealer, either directly or indirectly, continues to operate the outlet, except that if the business under such agreement develops to a point where additional loaned tank and pump equipment, as now permitted by the provisions of the code, becomes necessary, same may be installed at the expense of the lessee.'

"Resolved, that the general committee of the division of marketing recommend that the resolution adopted by the board of directors of the American Petroleum Institute on December 5, 1929, relating to the words 'bona fide leases' in Rule 2 of the code be amended to read as follows:

"'Resolved that, effective immediately, the words "bona fide leases" in Rule 2 of the code of marketing practices be interpreted to mean only formal written leases of not less than three years duration—stating the actual consideration to be paid as rental by the lessee, containing no privilege of cancellation on the part of either party in less than three years, and hearing the written consent of the fee owner of the property; to be filed for record by the lessee within 30 days after execution.'"

**Charge Stations for Labor**

Elimination of the practice made by

(Continued on Page 206)

## ATLANTIC STARTS SALE OF NEW GASOLINE GRADE

The Atlantic Refining Co., is now offering a new trademarked gasoline at all its stations known as "Atlantic White Flash." The gasoline which has been widely advertised is being sold at regular price for white grades of gasoline. The motor fuel is volatile, and has a high antiknock rating.

The company in announcing the gasoline, issued the following statement:

"Radio science made possible the development of the antiknock gasoline, the first time that the "mike" has been enlisted to pry into the secrets of combustion, according to the company. To the extreme sensitivity of vacuum tubes and delicacy of the microphone company chemists ascribe their success in devising a gasoline so free from knock-producing characteristics.

"An 'electrical ear' is used to measure combustion sounds. This instrument, perfected only after many months of painstaking research, is a combination of unusually sensitive microphone, radio vacuum tubes, sound filter and meters and other electrical devices evolved for this particular work.

"In operation, it is suspended near the test engine and, because of its special construction, is sensitive only to engine 'knocks,' which in turn are further magnified by special meters. The result is a highly sensitive instrument that amplifies the slightest whisper of a 'knock' a hundred fold.

"As soon as this instrument had been perfected, others were constructed and all are now in constant use at the company laboratory to test every batch of the new fuel to insure that the antiknock characteristics are being maintained. Cars and trucks of practically all makes were driven thousands of miles during the past year as practical tests of the efficiency and characteristics of the new fuel."

## MANY STATES CONSIDER HIGHER GASOLINE TAXES

Efforts will be made to raise the gasoline tax rates in several states after the first of the year according to a survey conducted by the American Petroleum Institute. The legislatures of several states will be in session and the matter of increases in present gasoline tax rates will be presented for consideration in practically all cases.

Among the States where there is a strong agitation for higher gasoline tax rates are Minnesota, Iowa, Pennsylvania, Wisconsin, Nebraska, Massachusetts, North Carolina, New York, Michigan, West Virginia, Washington, Colorado, Mississippi, South Dakota, Ohio and the District of Columbia. The agitation in these States follows the recent action of the voters in New Jersey and Louisiana who approved tax rate increases. On November 27, the tax rate in Louisiana was advanced from 4 cents to 5 cents and on December 1 the tax increase from 2 cents to 3 cents became effective in New Jersey.

With these latest increases, 3 states now have a 6-cent rate; 10 states, 5-cent rate; 17 states, 4-cent rate; 1 state, 3½-cent rate; 11 states, 3-cent rate; and 6 states and the District of Columbia, 2-cent rate.

## COMMITTEE TO STUDY NEW GASOLINE SPECIFICATIONS

Study of the proposed specifications for motor fuels of the Federal Specifications Board as they affect state gasoline standards will be made in the early future by a committee representing the board of directors of the American Petroleum Institute.

R. C. Holmes, The Texas Company, New York, is chairman of the committee, which was appointed by President Reeser at a session of the directors during the eleventh annual meeting of the Institute at Chicago early in November. Members are: W. M. Irish, Atlantic Refining Co., Philadelphia, Pa.; J. Howard Pew, Sun Oil Co., Philadelphia, Pa.; George R. Nutty, Gulf Refining Co., Pittsburgh, Pa.; K. R. Kingsbury, Standard Oil Co. of California, San Francisco, Calif.; and W. G. Skelly, Skelly Oil Co., Tulsa. The committee will work in conjunction with the Institute's Division of Refining Committee on Testing Methods and Specifications.

Appointment of the committee was authorized after the directors had received and discussed a resolution adopted by the Western Petroleum Refiners Association, with affirmative recommendations by the general committee of the Institute's Division of Refining, stressing the immediate need of studying the provisions of specifications, both Federal and state, as they affect gasoline sold for general use.

It was explained that the Federal Specifications Board, in proposing to modify specifications for U. S. Motor gasoline, had established as a protection against vapor lock a maximum vapor pressure requirement of 10 pounds per square inch. This is regarded by refiners as placing an undesirable restriction on the volatility of gasoline that may be sold to the public in the many states which have adopted U. S. Motor gasoline as their standard.

### BUILD NEW TERMINAL

A new deep-water bulk terminal will be built at Tiverton, near Providence, R. I., for use by independent refiners and marketers supplying gasoline and fuel oil to stations throughout Rhode Island, Massachusetts and Connecticut.

The New England Terminal Co., will operate the plant. This company is a subsidiary of the Penn Valley Refining Co. and the James B. Berry Sons Oil Co. of Oil City, Pa. The Penn Valley Refining Co., in turn is controlled by the Pennsylvania Petroleum Products Co. The oil will arrive at Tiverton from Pennsylvania points and from Houston, Tex.

Two 60,000-gallon tanks already have been constructed and more are to be built. Two cargoes of fuel oil have been landed at the depot by tankers. It is planned to have enough storage space on the 10-acre property to handle 200,000 bbls. of gasoline and fuel oil.

### NEW EDELEANU TREATING UNIT

The Union Oil Co. has started operating its new Edeleanu unit for treating kerosene at its Los Angeles, Calif., refinery. The new unit which will have sufficient capacity to treat 7,000 bbls. of kerosene daily is said to be the largest ever installed in a refinery in this country.

Sulphur dioxide is used in treating the kerosene with the Edeleanu process. Practically all of the chemical is recovered after its use in treating the kerosene. The output of the new plant will be largely used in supplying the export trade of the Union company.

Billions of Bubbles

## Naming the Baby

CHOOSING a name for a piece of apparatus is, like finding a name for the baby, a matter of great moment.

Every baby, we stoutly maintain, has a right to an honorable name, at least one that truly characterizes him. If he is a sturdy, lusty bairn his name should indicate as much.

And so with equipment. The name should suggest the true nature of the thing named. When the J. A. Campbell Co. in 1928 brought out a mist extractor (after several years of research and experimental work), they gave much thought to the matter of a name.

The most outstanding characteristic of this new mist extractor being the mathematical certitude with which it takes ALL the mist out of the gas, what better name than MIST-D-FIER?

The name took, and today it is often unconsciously used by members of the industry to designate mist extractors in general, just as Vaseline and Kodak have come to stand for petroleum jelly and cameras in general.

And so the baby's name is MIST-D-FIER. That he is well named is attested by the demand for his company in the best industrial circles.

*Full information about the MIST-D-FIER in Bulletin No. 7. Ask for it.*

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A MINIMUM of stretch is essential to prevent slip, surface wear and a need for frequent adjustments. On the other hand the rope must not have so much hardness as to cause fibres to cut during internal tension changes.

Wall Bull Rope is made with this problem in mind. Wall's geared, synchronized production process assures an equal amount of twist — an equal hardness — to every foot of rope.

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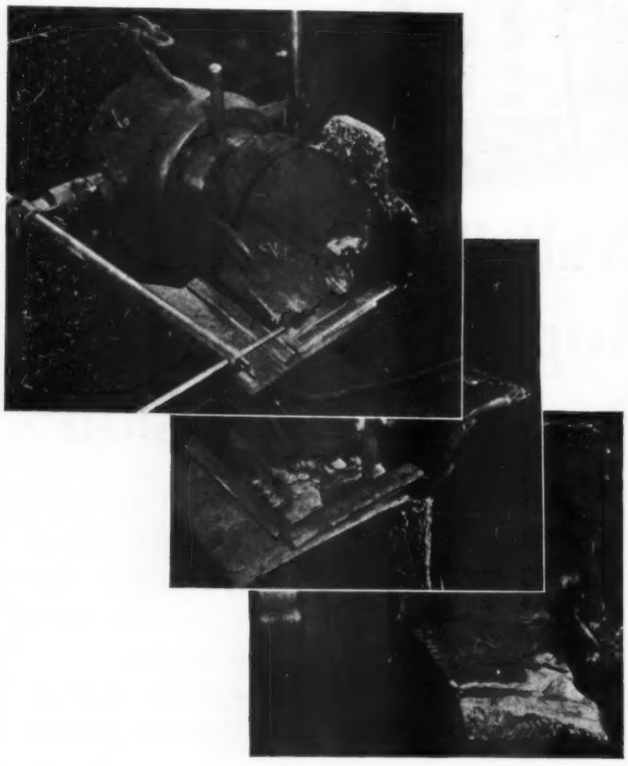
Wall Walk-Laid Bull Ropes
Wall Manila Rope, plain laid
Wall Cat Lines

WALL *Walk-laid* MANILA BULL ROPE

# CUT DOWN YOUR COSTS WITH THE NEW-SUPER-FLUX-COATED BORIUM WHICH MAY BE APPLIED WITH THE ELECTRIC ARC



FABRICATING bits with flux-coated BORIUM and the electric process is such a simple procedure. Just lay the pieces of BORIUM on the copper form and weld them in. The process saves approximately half the time and expense of any other method of bit fabrication and bits built up by this method perform much better in service. FLUX-COATED BORIUM is manufactured only by

**STOODY COMPANY**

*Manufacturers of*

**Welding Rod ◆ Alloy Steels ◆ Equipment**

**WHITTIER, CALIFORNIA**


# NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

## TEXAS PANHANDLE

**Carson County**

North American Oil & Gas Co.'s No. 1 E. S. Polling, 1,320 feet south and 1,500 feet west of the NE cor. of the NE of Section 24, Block Y-2, T.T.R.R.

**Gray County**

Adams & Prince and others' No. 1 J. S. Morse, 330 feet south and west of the NE cor. of the SE of Section 6, Block 26, H.&G.N. J. Boyles and others' No. 1 Colebank-Morse, 330 feet south and west of the NE cor. of Section 65, Block 25, H.&G.N. S. A. Hurst and others' No. 1 J. H. Ayres, 330 feet north and west of the SE cor. of Section 76, Block 3, I.&G.N.

**Hutchinson County**

Combination Oil & Gas Co.'s No. 1 Johnson Brothers (Wheatley), at the C of the SE of the SW of Section 2, Block Y-2, T.T.R.R. Deal Oil & Gas Co.'s No. 2 J. M. Sanford, 330 feet south and west of the NE cor. of the north 80 acres of the south 160 acres of Section 81, Block 46, H.&T.C. Mitchell and others' No. 1 M. E. Dunnaway, 330 feet south and 990 feet west of the NE cor. of Section 7, Block Y-2, T.T.R.R.

## NORTH CENTRAL AND WEST TEXAS

**Archer County**

J. Cable and others' No. 1 Z. G. Scott, 150 feet south and east of the NW cor. of the SW of Section 1,892, T.E.&L.

**Baylor County**

Consolidated Oil Co. and others' No. 20 W. H. Portwood, 1,741 feet north and 464 feet west of the SE cor. of the SW of Section 1,281, T.E.&L.

**Callahan County**

Hornbeck & Terry's No. 1 E. T. Terry, 1,450 feet north and 1,600 feet east of the SW cor. of Section 47, Lunatic Asylum Land. Star Drilling Co.'s No. 1 E. L. Finley-E, 150 feet south and 300 feet west of the NE cor. of the SW of the NE of Section 77, Bayland Orphan Asylum Land. W. A. Thompson and others' No. 1 F. S. Bell, 150 feet south and west of the NE cor. of the NW of Section 77, Bayland Orphan Asylum Land.

**Coleman County**

W. Gant and others' No. 1 J. B. Lowe, 450 feet north and 150 feet west of the SE cor. of the J. B. Lowe 137.3-acre tract out of the S. L. Sprague Survey No. 748. Guffey Brothers and others' No. 2 Peggie Brothers, 390 feet north and 150 feet west of the SE cor. of the Peggie Brothers' 241-acre tract out of the B. Alderata Survey No. 273. Rector Oil Co. and Mid-West Exploration Co.'s No. 1 J. M. Gill, 8,625 feet south and 2,950 feet east of the NW cor. of the E. Mudd Survey No. 69.

**Cooke County**

Comail Oil Co.'s No. 1 C. C. and C. B. Potter, 150 feet north and west of the SE cor. of the C. S. Hill Survey A-469.

**Grayson County**

F.H.E. Oil Co.'s No. 1 D. R. Utiger, 150 feet north and 880 feet east of the SW cor. of the west 80 acres of the P. P. Caddy Survey A-301. G. Tucker and others' No. 2 J. R. Handy and M.P. National Bank, 2,165 feet north and 850 feet east of the SW cor. of the south 188.5 acres of the J. R. Handy and M.P. National Bank 1,063-acre tract out of the S. Stewart Survey A-1,069.

**Hood County**

Samson Oil Co. and others' No. 1 J. Peters, 300 feet southeast of the northwest line and 700 feet northeast of the southwest line of the John Rose Survey.

**Irion County**

Dixie Oil Co.'s No. 1 W. H. Williams, 1,330 feet north and 1,320 feet west of the SE cor. of Section 1,196, T.T.R.R.

**Loving County**

Cromwell and Atlantic Oil Producing Co.'s No. 1 Wheat & Ramsey, 2,310 feet southwest of the northeast line and 330 feet southeast of the northwest line of Section 80, Block 1, W.&N.W.R.R. Douglas and others' No. 1 Wheat & Ramsey 330 feet northwest of the southeast line and 2,310 feet northeast of the southwest line of Section 83, Block 1, W.&N.W.R.R.

**Montague County**

Continental Oil Co.'s No. 29 J. W. Maddox-A, 625 feet north and 575 feet east of the SW cor. of Lot 2, C. Thompson Survey A-741.

**Pecos County**

Cardinal Oil Co.'s No. 1 J. H. Tippett-G, 750 feet north and west of the SE cor. of Section 62, Block 194, G.C.&S.F. B. C. Mann's No. 1 Scharff & Blackman, 3,000 feet northeast of the southwest line and 990 feet northwest of the southeast line of Section 32, Block 3, H.&T.C. Mid-Kansas Oil & Gas Co. and others' No. 2 M. Sellman-A, 250 feet north and 330 feet east of the SW cor. of Section 12, Block 194, G.C.&S.F.

**Scurry County**

Scurry County Oil Exchange's No. 1 C. H. Earnest, 2,310 feet south and east of the NW cor. of Section 68, Block 3, H.&G.N.

**Shackelford County**

H.&H. Drilling Co.'s No. 1 B. S. Walker, 450 feet northwest of the southeast line and 1,400 feet southwest of the northeast line of Section 381, T.E.&L.

**Stephens County**

Anderson & Prichard's No. 1 S. O. Harvey, at the C of the NW of the SE of Section 2, H.T.&B.

**Throckmorton County**

L. V. Ulrey's No. 1 D. McKeichan, 660 feet north and 150 west of the SE cor. of the W half of the D. McKeichan Survey A-1,277. J. V. Ulrey's No. 1 D. McKeichan (Section 1,641), 1,200 feet south and 150 feet west of the NE cor. of Section 1,641, T.E.&L. Woodley Petroleum Co.'s No. 1 S. R. Pogue, 450 feet north and 150 feet west of the SE cor. of the SW of Section 247, B.B.B.&C.

**Tom Green County**

Pratt & Hancock's No. 1 G. W. Lewis, 450 feet south and 518 feet east of the SE cor. of the J. Webb Survey No. 77 and located in the A. Black Survey No. 75. Pratt & Hancock's No. 2 G. W. Lewis, 100 feet north and 330 feet east of the most northerly SW cor. of the J. S. Grant Survey.

**Upton County**

Eppenauer Drilling Co.'s No. 5 W. A. Chaney, 1,650 feet south and 990 feet east of the NW cor. of Section 18, Block 3, M.-K.-T. Humble Oil & Refining Co.'s No. 1 M. G. Damron and others, 330 feet south and east of the NW cor. of Section 192, Block F, C.C.S.D.&R.G.N.G. Weekley Oil Corp. and others' No. 1 H. L. McClintic, 1,650 feet south and 330 feet west of the NE cor. of Section 206, Block F, C.C.S.D.&R.G.N.G.

**Wichita County**

R. R. Clark and others' No. 11 W. P. and J. F. Bickley, 900 feet south and 450 feet west of the NE cor. of Section 2, C.&M., A-594. B. H. Hubbard and others' No. 1 American Refining Properties, 150 feet south and 1,320 feet west of the NE cor. of the north 80 acres of the American Refining Properties 160-acre tract out of Sections 21 and 22, H.&G.N., and located in Section 22, H.&G.N., A-396. T. F. Hunter and others' No. 1 American Refining Properties, 1,475 feet north and 1,782 feet west of the SE cor. of the south 168 acres of the north 981.9 acres of the J. M. Sharp Survey A-262. J. Pyle and others' No. 2 W. W. Overby, 1,196 feet north and 431 feet east of the SW cor. of the J. M. Sharp Survey A-262.

**Wilbarger County**

W. Bennett's No. 1 W. H. and A. P. Hawley, 400 feet south and east of the NW cor. of the SW of the NE of Section 29, Block 2, H.&T.C. The Texas Company's No. 386 W. T. Waggoner, 1,650 feet south and 382 feet east of the NW cor. of Section 5, Block 13, H.&T.C. The Texas Company's No. 387 W. T. Waggoner, 2,310 feet south and 444 feet east of the NW cor. of Section 6, Block 13, H.&T.C.

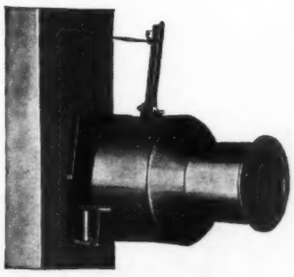
**Young County**

F.H.E. Oil Co.'s No. 2 W. T. Finch and others, 150 feet south and 450 feet west of the NE cor. of the south 80 acres of Section 31, T.E.&L. F. A. Garrie and others' No. 1 Mrs. O. Beckman, 150 feet

# FOR PERFECT PERFORMANCE

## AMERICAN AUTOMATIC CATHEAD

**The American Automatic Cathead's performance is perfect because it does the job quickly, simply and accurately. Here is a little wonder maker that performs just right 100 times out of every hundred and it carries a real wallop in the thrill its perfect performance gives every user.**



Trap shooting! Mister, there is a man's sport! Have you ever toed the line with your favorite gun poised lightly at ready, waiting impatiently for the swift flight of the clay birds? With the snap of the cool air whipping your cheeks to a healthy glow; with the inverted bowl of heaven a sparkling blue, separated at the horizon from the brown and gray ground by a scarlet band of frost-nipped oaks, the day is perfect!

Whir-r-r! Instantly you are alert. Ah, there goes the first clay bird! Your gun to shoulder, is aligned, you catch the bird across the sights, you squeeze the trigger—bang!—and you thrill as the clay disc shatters into a thousand pieces.

Whir-r-r! Bang! Whir-r-r! Bang! In swift succession the birds are cast into the air only to meet the devastating blast of your trusty smoke pole. One—two—three—four—five, one after another they go up in smoke—98 out of 100! Boy, that is shooting! A perfect performance. The thrill of a lifetime, and something to tell your children about.

If you thrill to such a perfect performance, then you've got another thrill awaiting you in the perfect performance of the American Automatic Cathead, so vital to successful drilling.

**AMERICAN**
**IRON & MACHINE WORKS CO.**
**OKLAHOMA CITY, U. S. A.**

**MANUFACTURERS OF OIL FIELD EQUIPMENT**

# Tubing Leaks Found in Hours Instead of Days!

**This immense saving in time and money has been proved in the field time after time. Whether it be a pressure split or a leaky collar it can be exactly located. It pays for itself on a single job.**

## Quick Facts About GRANGER Tubing Leak Indicator

*1 Works By Itself*

*2 Stops Exactly At Leak*

*3 Eliminates Guess Work*

*4 No Chopped Rope Nor Color Methods*

*A request will bring literature describing the tool in detail.*

**Granger Indicator Co.**

*Main Office*
137 N. Greenleaf, WHITTIER, CALIF.

*Mid-Continent Branches*
320 East 11th St., Tulsa, Oklahoma
R. L. Melton, Mgr.
120 Main Street, Seminole, Oklahoma

*Mid-Continent Distributor*
**Pelican Well Tool and Supply Co.**
With Stores at—
El Dorado, Arkansas
Shreveport, Louisiana
Monroe, Louisiana
Lake Charles, Louisiana
Zwolle, Louisiana


north and 450 feet east of the SW cor. of the Mrs. O. Beckman 200-acre tract out of the M. Barnes Survey A-14. Halmack Oil Co. and others' No. 7 J. D. Carpenter, 467 feet south and 450 feet east of the NW cor. of the N half of the SW of Section 164, T.E.&L. King Royalty Co. and Bullington's No. 7 J. and C. Graham, 150 feet north and 406 feet west of the SE cor. of the north 40 acres of the J. and C. Graham 200-acre tract out of Section 2,249, T.E.&L. Kleiner, Ard & Chancellor's No. 1 Belknap Coal Co., 790 feet south and 150 feet west of the NE cor. of Section 21, T.E.&L. C. C. Mason's No. 1 R. E. Jones, 150 feet north and east of the SW cor. of the south 80 acres of the R. E. Jones 160-acre tract out of Section 193, T.E.&L. Midland Oil Co. and others' No. 1 E. C. Keith, 150 feet south and east of the NW cor. of the north 40 acres of the NE of Section 268, T.E.&L. Panhandle Refining Co.'s No. 7 A. C. Watson, 1,000 feet north and 1,880 feet west of the SE cor. of the north 1,000 acres of the A. C. Watson 246-acre tract out of Section 249, T.E.&L. E. R. Riggs' No. 3 I. M. Kirkland, 1,125 feet south and 325 feet west of the NE cor. of the I. M. Kirkland 120-acre tract out of Section 2,249, T.E.&L. Swink & Smith's No. 2 Belknap Coal Co.-B, 150 feet north and 450 feet east of the SW cor. of the east 40 acres of the north 80 acres of the Belknap Coal Co. 213.8-acre tract out of Section 22, T.E.&L. T. G. Williams and others' No. 1 J. M. Helton, 150 feet north and west of the SE cor. of the north 82 acres of the J. M. Helton 320-acre tract out of Section 127, T.E.&L. Wooten & Reed's No. 3 J. A. Horton, 1,350 feet north and 450 feet east of the SW cor. of Section 1,906, T.E.&L. Hamilton and others' No. 1 R. J. Johnson (Section 2,946), 230 feet north and 150 feet west of the SE cor. of Section 2,946, T.E.&L.

**Ward County**

Grand Falls Oil Co.'s No. 1 Blair & Boogher, 500 feet northeast of the southwest line and 1,160 feet southeast of the northwest line of Section 11, Block 5, H.&T.C.

### PANHANDLE, NORTH CENTRAL AND WEST TEXAS

**Changes**

In Pecos County: Cardinal Oil Co.'s No. 1-F J. H. Tippett (Shell)), 780 feet south and 157 feet east of the SE cor. of the Arnold & Barrett Survey No. 539, A-3, and located in Section 61, Block 194, G.C.&S.F., being 142 feet north and 157 feet east of the SW cor. of its 160-acre lease. Cardinal Oil Co.'s No. 2-F J. H. Tippett (Shell), 442 feet north and 161 feet east of the SW cor. of its 160-acre lease out of Section 61, Block 194, G.C. &S.F. Dixie Oil Co.'s No. 4 J. H. Tippett, 780 feet south and 153 feet west of the SE cor. of Section 539, Arnold & Barrett Survey A-3, and located in Section 61, Block 194, G.C.&S.F. Dixie Oil Co.'s No. 5 J. H. Tippett, 1,065 feet south and 150 feet east of the SE cor. of the Arnold & Barrett Survey No. 539, A-3, and located in Section 61, Block 194, G.C.&S.F., being 142 feet south and 129 feet east of the SW cor. of the Cardinal Oil Co. 160-acre lease.

### ECUADOR PRODUCTION

Production of crude oil in Ecuador during the first nine months of 1930 is reported to have reached a total of 1,158,829 bbls., nearly all of which resulted from operations of the Anglo-Ecuadorian Oilfields, Ltd., which was registered in London, April 9, 1919, to acquire the holdings of the Lobitos Oilfields, Ltd. Production is centered at Santa Elena, a short distance from La Libertad, the terminus of the oil line leading from the field and the site of the company's refinery and loading pier. Oil shipments from Ecuador are reported to have commenced during 1925. During the first nine months of 1930, approximately three-fourths of the crude produced was shipped to the United States.

### GAS TO COAL TOWN?

BLOSSBURG, Pa., Dec. 6.—The possibility that Blossburg, center of Tioga County's bituminous coal field, will be equipped with natural gas lines from the North Penn Gas Co. has been expressed by J. H. Isherwood, vice president of the company, in a short talk to members of the local council. While the survey has not been completed a representative of the company is making a thorough canvas of the town. If the survey proves a success it is expected that the work of laying the pipe line will begin in a short time.

### YUGO-SLAVIA BUYS RUMANIAN OIL

The Yugo-Slavian government has concluded a contract with the Rumanian government calling for the delivery of 25,000 tons of crude petroleum products over a maximum period of two years. The crude to be sold by the Rumanian government consists of royalty in kind from companies operating in Rumania. Previously, the royalty crude due the government was repurchased by the companies which produced it.

### LOADING TANK CARS IN POLAND

—International Newsreel Photo

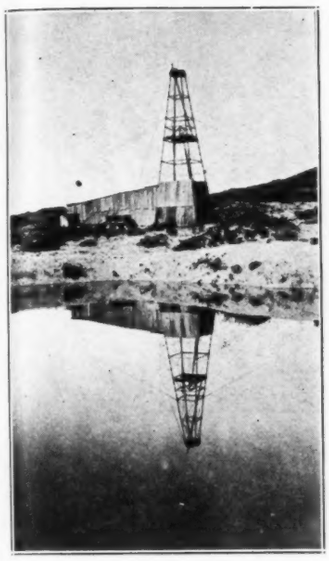
**At the new oil fields in Poland. Acres and acres of tank cars loaded with oil at the Drohobycz station here after the finding of new oil fields at Boryslaw started a gigantic boom**

# GOVERNMENT PRODUCTION DECLINES BUT PRIVATE GAINS IN ARGENTINE

**Specially Contributed**

Crude oil production in Argentina during the first six months of 1930 registered a small decline over the corresponding period of 1929, according to 1930 estimates published by "Petroleos y Minas" and official 1929 statistics, which credit Argentina with a production of 4,313,147 bbls. during the first semester of 1930 as compared with 4,381,117 bbls. during the corresponding period of 1929. This decline of 67,970 bbls. represents a drop of 1.55 per cent.

The principal decline was registered in the Comodoro Rivadavia Field, the major source of local supply. Crude output



*A lonely well in the Argentine. Reflected in the heavy oil of the adjoining storage pit.*

during the first six months of 1930 was estimated at 3,573,733 bbls., a decline of 241,993 bbls., or 6.34 per cent, from the 1929 output of 3,815,726 bbls. Government production of crude in Comodoro Rivadavia dropped from 2,330,941 bbls. during the first half of 1929 to 2,157,470 bbls. during the corresponding period of 1930; while the output of private companies in the field declined from 1,484,785 bbls. in 1929 to 1,416,263 bbls. in 1930.

Production in Comodoro Rivadavia reached a peak during 1928, when a total of 8,196,417 bbls. was recorded. This dropped to 8,161,325 bbls. in 1929, a decrease of 35,092 bbls. The difference in production between the first six months of 1928 and the similar period of 1929 was 317,810 bbls.; consequently, the drop of 241,993 bbls. during the first half of 1930 cannot be taken as an indication that production during the last half of the year will show a similar decrease.

A substantial increase in the production of lighter crude at Plaza Huincul partially offset the decline in the heavier Comodoro Rivadavia crude. Estimates for the first half of 1930 indicate a production of 637,686 bbls., as compared with 462,053 bbls. during the first half of 1929, an increase of 175,633 bbls., or 38.01 per cent. Crude oil from Plaza Huincul is shipped by tank car to Bahia Blanca and to refineries at Galvan and La Plata. In addition, a small portion of the crude is refined locally and the products are shipped to serve the demand in the territory intervening between Plaza Huincul and Bahia Blanca.

In the northern province of Salta, production during the first half of 1930 was approximately equal to that of the first half of 1929. The principal production in this region results from private operation, although the Argentine government is represented with a small output.

For the country as a whole, government production of crude is estimated to have declined from 2,519,196 bbls. during the first half of 1929 to 2,439,262 bbls. during 1930, while the output from private operations is reported to have shown a slight increase from 1,861,921 bbls. in 1929 to 1,873,885 bbls. during 1930.

## SOVIET REPORTS ON TEN YEARS IN OIL

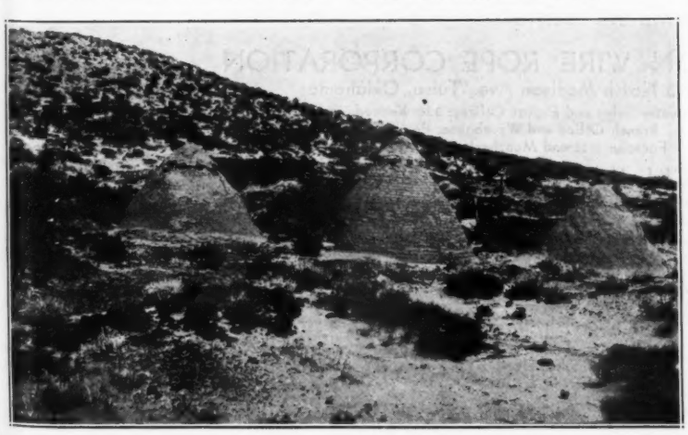
(Continued from Page 159)

plan set the sum total of capital investments in the oil industry during the five-year period at about 4,000,000,000 rubles. Of this sum 1,500,000,000 rubles, or 38 per cent, is for exploitation and exploration drilling; 1,000,000,000 rubles, or 23 per cent, for the building of new plants; 400,000,000 rubles, or 9.5 per cent, for oil transport; 300,000,000 rubles for the development of the marketing apparatus and warehouse facilities; 290,000,000 rubles for the production of oil and gas; and the balance for dwelling construction, etc.

The cost of the equipment required for the oil industry during the five-year period is set tentatively at 1,300,000,000 rubles. The main items are: Drilling equipment, 536,000,000 rubles; equipment for refining plants, 260,000,000 rubles; equipment for transport, 136,000,000 rubles; pipes for pipe line, 92,000,000 rubles; electric power plant equipment, 40,000,000 rubles.

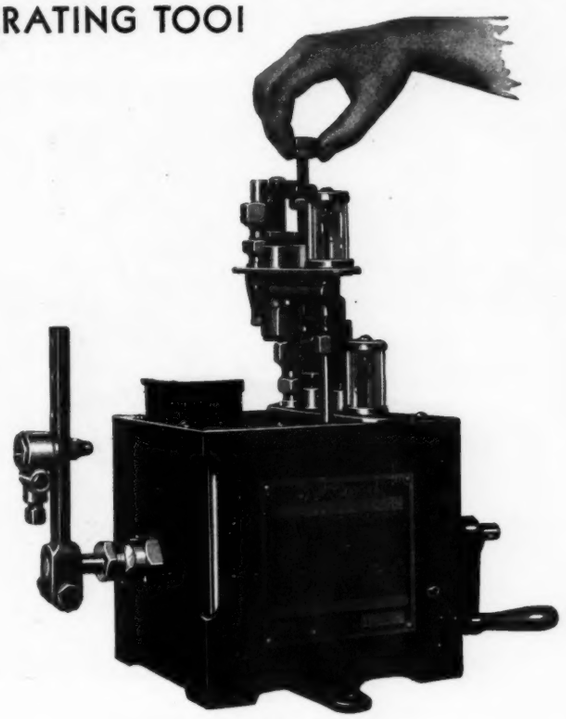
### R. L. DUFF MADE CHAIRMAN

R. L. Duff, Standard Oil Development Co., Elizabeth, N. J., has been appointed chairman of the subcommittee on metal test sample corrosion of the committee on corrosion of Refinery Equipment of the American Petroleum Institute.

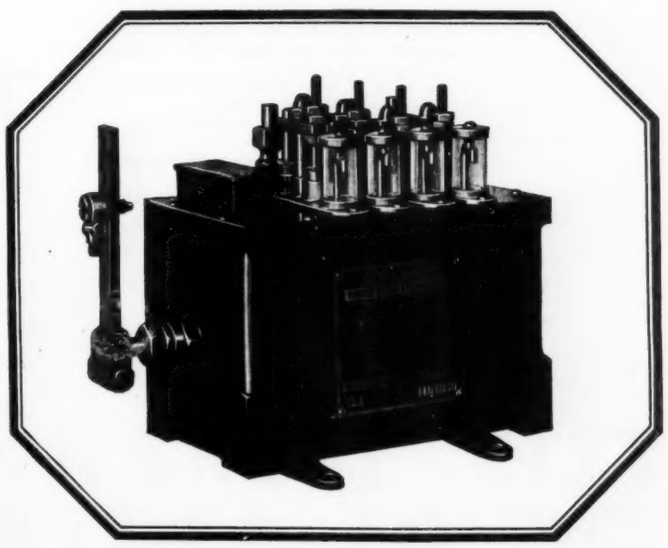


*Primitive "bee-hive" stills in the Argentine. Used for retorting oxidized oil to produce coke.*

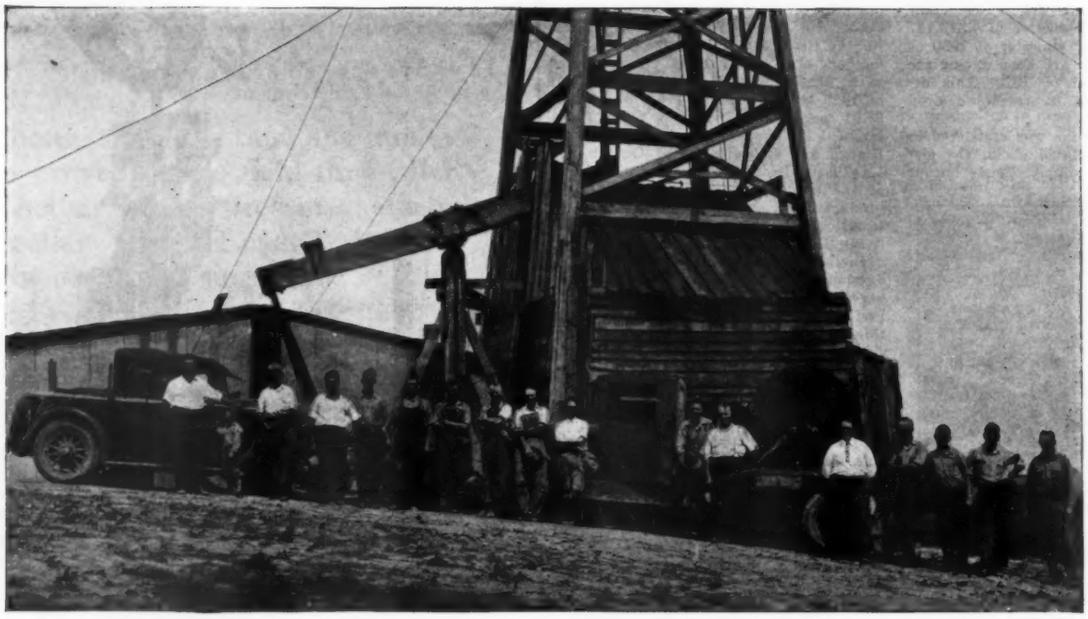

ANYONE CAN REMOVE A PUMP UNIT FROM THE "LD"—AND WHILE IT IS OPERATING TOO!



• McCORD is the only lubricator on which it is possible to do this. When you install a McCord you can rest assured there will be no more shut-downs for cleaning or adjustment—take a pump unit out any time—the lubricator will continue to operate. Quite important, don't you think? Especially when you start figuring costs. Specify a McCord "Standard of the Oil Fields" on your new compressors and engines or for replacement on present equipment.



McCORD
RADIATOR & MFG. CO.
(LUBRICATOR DIVISION)
DETROIT MICHIGAN



The men in this picture, left to right, are:
J. K. Potts of the Ward Drilling Co. and his grandson Dickey Stout.
Ed Willet, shooter for the Agnew Torpedo Co.
M. G. Jameson, Dist. Sup't for the East Ohio Producing and Refining Co.
S. E. Swallow, M. C. Cox, J. H. Dawson, R. G. Hostetter, and D. E. Cox rig building crew of the rig contracting firm of Swallow and Swallow.
H. A. Sater, scout of the Ohio Fuel Gas Co.
C. P. Trowbridge in charge of tools for the Gordon Oil Co.
Adam Rohrbaugh who completed this well and is one of the oldest active drillers in the east, having begun drilling at Callery Junction, Pennsylvania, in 1888.
J. W. Blacksten, President and General Manager for the Capitol Drilling Co.
G. L. DeVore and J. F. Grey, cleaning out men.
F. R. Shumaker in charge of the trucking for the Capitol Drilling Co.
L. A. Liddle owner of the land on which this well was drilled.

UNION WIRE ROPE CORP.
TRADE MARK

# UNION has lots of friends at Cambridge, Ohio

THE above photograph, taken at Liddle No. 2 in the Cambridge territory, is typical of scenes in this district because it shows a UNION Drilling Line which has completed this well and is ready for the next location.

UNION Wire Lines make friends everywhere by being of staunch character - - by serving with emminent satisfaction under all conditions.

UNION WIRE ROPE CORPORATION
3 North Madison Ave., Tulsa, Oklahoma
Oil Country Sales and Export Offices: 338 Kennedy Bldg., Tulsa
Branch Office and Warehouse: Portland, Ore.
Factory: 21st and Manchester, Kansas City, Mo.

JARECKI MANUFACTURING COMPANY
Mid-Continent and Eastern Oil Field Distributors - - Stocks at All Stores

# UNION WIRE LINES

## EXPLOIT OLD SUMATRA WITH MODERN METHODS

(Continued from Page 156)

providing a monthly salary. The Malay and Chinese coolies are used as drillers' helpers and in all unskilled work around the lease.

With radio communication between the refinery and the home office in the United States; with motor trucks and touring cars to haul materials that must be moved rapidly to avoid shut downs; with efficient construction equipment such as tractors, tractor cranes, pneumatic hammers, welding outfits, etc.; with standard gas engine compressors in the repressure plants, vertical gas engines in the electric plants, and modern Diesel engines in the pumping plants—an oil man's life is not so bad, after all—in this colorful old spot where East meets West.

—Photo by Ewing Galloway, N. Y.

**Family life along the palm-lined roads of Sumatra. A typical road scene in Panjang.**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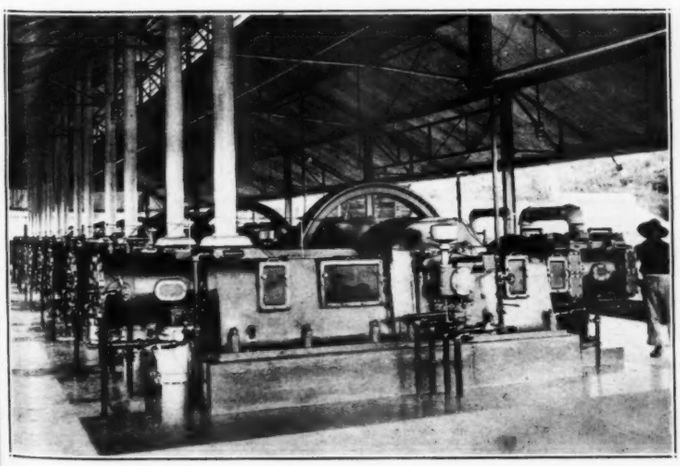
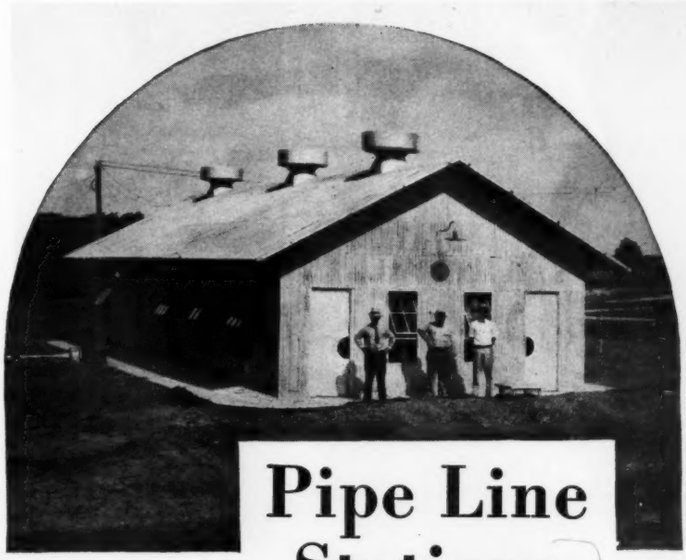
### BRITISH OIL CORP. FORMED

The British Oil Corp., Ltd., capitalized at $5,000,000, has been incorporated to operate in the Red Coulee oil field of Canada. The company was financed by British capital. British Oil is the first company of purely British make-up to enter the Red Coulee Field.



**Battery of Cooper-Bessemer Type Tens operating at Palembang, Sumatra—in the heart of the tropical orient.**

# Pipe Line Stations

## *Maintained at Lower Cost*

**Corrosion-resisting Granite City Copper Bearing Sheets reduce upkeep and depreciation charges wherever sheet steel must meet constant exposure to the elements. In roofing and siding and in many other applications this long-wearing steel has proved its ability to outlast ordinary steel almost 300%.**

**Delivery to jobbers and fabricators in the Mississippi Valley, the West and the Southwest is unusually prompt because of our convenient location just 20 minutes from Saint Louis, served by 29 railroads and the Mississippi River.**

***Circles, semi-circles and plates in rust-resisting, corrosion-resisting copper bearing steel if desired. Three times the life of ordinary steel.***

Chicago ▾ Dallas ▾ Kansas City ▾ Los Angeles ▾ St. Louis ▾ St. Paul ▾ San Francisco ▾ Salt Lake City

# GRANITE CITY STEEL CO.

GRANITE CITY ILLINOIS

Galvanized, Blue Annealed and Black Sheets - Plates and Tin Plate

SINCE 1878 GRANITE CITY SHEETS

**Available in Regular or Copper Bearing Steel**

# This super-service Bull Rope at no additional cost

Although a new special process of manufacture has been added—no advance in the price of Plymouth Bronzo Manila Bull Rope has been made. So, at no additonal cost you get a good bull rope made so much better that it holds unquestioned first rank in both quality and value.

Plymouth Bronzo Manila Bull Rope is the highest quality bull rope specially treated with the ideal Bronzo lubricant, which greatly reduces internal friction and adds life to the rope in service.

Solve your bull rope problem with Plymouth Bronzo Manila Bull Ropes. They are actually superior to anything in the field and will wear much smoother than ordinary rope. This specially treated rope will prove its superiority and economy in use.

Plymouth Bronzo Manila Bull Rope is on sale at the nearest Oil Well Supply Company store. Also Plymouth Manila Drilling Lines, Cat Lines, Crackers and Spinning Lines.

PLYMOUTH CORDAGE COMPANY
North Plymouth, Mass.
OIL WELL SUPPLY CO., *Distributors*
Stores in All Oil Fields

PLYMOUTH TRADE MARK 1824

**PLYMOUTH—"*the rope you can trust*"**

## LESS CRUDE IMPORTED INTO UNITED STATES

(Continued from Page 198)

of this product valued at $282,132 compared with 52,790 bbls. valued at $284,220 in the same month of 1929. From all other countries came only 18,115 bbls. practically the same quantity so classified in the previous October.

Paraffin imported in October totaled 3,182,368 pounds valued at $159,924 compared with 4,280,905 pounds valued at $243,153 in the previous October, which shows a decrease in price from .0568 cent per pound on imports of October, 1929, to .0502 cent per pound in October, 1930.

There was a decrease in the exports of crude petroleum in October when the quantity was 2,166,685 bbls. valued at $3,161,501 compared with 2,868,807 bbls. valued at $4,334,543 in October, 1929. In the 10 months' period ending with October these exports totaled 20,600,290 bbls. compared with 21,725,716 bbls. in the same period of 1929.

Refined oils exported in October, amounted to 10,712,963 bbls. valued at $36,142,057, a decrease from 13,092,268 bbls. valued at $49,529,279 in October, 1929.

The total value of all petroleum products exported in October, 1930, was $41,480,734 compared with $56,838,973 in October, 1929, a decrease of 15,358,239 bbls. This decrease was made up of decreases in the exportation of both crude and refined oil.

"Europe" took but little crude oil from the United States so far as the record shows, the amount being only 184,932 bbls. compared with the negligible quantity of 5 bbls. exported in October, 1929. Exports to Canada dropped from 2,591,776 bbls. in October, 1929, to 1,675,083 bbls. in the same month of 1930. Cuba took 79,306 bbls. and Japan 53,754 bbls., practically the same as in October, 1929.

Gasoline, naphtha and other finished light products exported in October totaled 6,133,362 bbls. valued at $21,863,725, an increase in quantity and a decrease in price from the exports in October, 1929, when the quantity was 5,967,138 bbls. valued at $26,341,039.

The gasoline exports for the 10 months' period ending with October totaled 55,424,141 bbls., an increase from 50,097,124 bbls. in the same 10 months' period of 1929.

In October bulk shipments of gasoline showed an increase from 5,434,770 bbls. in October, 1929, to 5,900,098 bbls. in October, 1930, and shipments in containers decreased from 532,358 bbls. in October, 1929, to 233,264 bbls. in the same month of 1930.

Kerosene exports decreased from 2,237,235 bbls. in October, 1929, to 1,401,011 bbls. in October, 1930.

Exports of gas and fuel oil decreased from 3,815,070 bbls. in October, 1929, to 2,444,926 bbls. in October, 1930.

Exports of bunker oil decreased from 4,540,296 bbls. in October, 1929, to 4,463,288 bbls. in October, 1930.

Lubricating oil exports decreased from 1,056,924 bbls. in October, 1929, to 720,781 bbls. in October, 1930. However the average value per barrel as shown by the records was $9.05 for the 1929 shipments while the shipments for October, 1930, average $9.45 per barrel. For the 1,056,924 bbls. of lubricants shipped in October, 1929, the value was $9,566,966 and for October, 1930, for the 720,781 bbls. shipped the total value was $6,817,763.

Exports of lubricating greases increased from 8,513,904 pounds in October, 1929, to 8,566,279 pounds in October, 1930.

Exports of lubricating wax decreased from 39,091,116 pounds in October, 1929, to 31,721,287 pounds in October, 1930.—C. E. K.

## A.P.I. WILL CONSIDER IMPORTANT CHANGES

(Continued from Page 198)

oil companies of loaning pumps, tanks and other equipment to gasoline service stations has been recommended by the Middle Western Regional Code Committee.

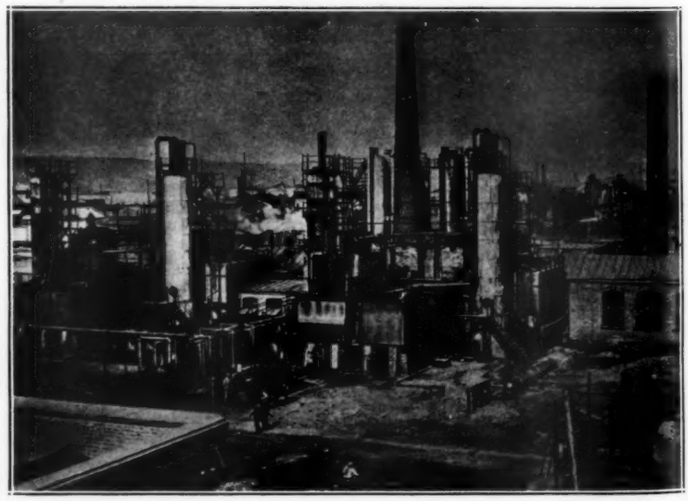
The committee, of which L. S. Westcoat, The Pure Oil Co., Chicago, Ill., is chairman, in session at Chicago during the annual meeting of the American Petroleum Institute, adopted a motion recommending to the General Committee of the institute's Division of Marketing that no future installations of pump, tank and other equipment be made at new locations without a charge for both equipment and labor involved. It was pointed out the motion was made in an effort to abolish the practices of furnishing equipment to future new accounts and of loaning additional equipment to present accounts except for replacements.

The recommendation, if approved by the general committee and made a part of the National Code of Practices for Marketing Refined Petroleum Products in effect would curtail Rule 1 of the code to the first sentence, which reads:

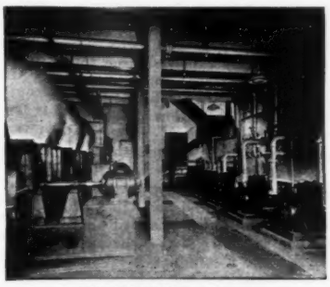
"The practice of loaning or leasing gasoline pumps, tank, and other equipment is unsound and uneconomic, and should be discontinued at the earliest possible moment, consistent with existing conditions."

Under the present rule equipment may be loaned to stations, or leased to filling stations, but the borrower or lessee must pay the cost of installation.

## FAMOUS RUSSIAN REFINERY

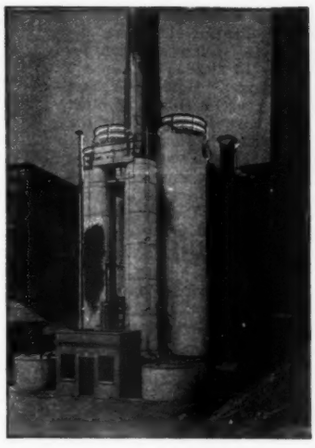


The oil refining plant named "The 28th of April" in the former Bakunitz section of Russia.



*The Model Pump Room*

# A combination LIQUID PURIFICATION & DEHYDRATION PLANT



We illustrate at the left a new Koppers Liquid Purification and Dehydration plant, designed and built by "Western Gas".

Gas with 2000 Gr. $H_2S$ per 100 cu. ft. at 40# gas pressure, is first purified then dehydrated. The gas produced is used for both domestic and commercial purposes.

Complete Literature covering "Dehydration" and "Koppers Liquid Purification Processes" available upon request.

## THE WESTERN GAS CONSTRUCTION CO.

**FORT WAYNE, IND.**

***"Western Gas" Designs and Builds***

- A. B. C. Generator Grates
- Naphthalene and Gum Absorbers
- Condensing Apparatus
- Carburetted Water Gas Plants
- Blue Water Gas Plants
- Gas Dehydration Plants
- Holders (Gas, Oxygen, etc.)
- Liquid Purification Plants
- Oxide Boxes (Purifiers)
- Welded Steel Pipe
- Tower and Rotary Scrubbers
- Valves

# Another "American" Installation

**Illustrated above is an installation with a No. 3 "American" individual pumping unit showing use of Tex-rope drive. This unit is adaptable for 18" or 22" stroke. It is furnished for belt drive or drive as shown.**

**The "American" individual oil well pumping unit is made in six sizes. They are compact and have few moving parts. All gears and pinions are oil immersed. All of the bearings except two are automatically lubricated. The power consumption is small and the units are easily counterbalanced.**

**All of these units give a straight lift on the polish rod and the special mule head and cable sling protect the unit in case of well sanding.**

**Detailed figures and engineering data of typical installations of this equipment in both this country and others are available. Ask for them!**

C. S. CARTER
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**THE AMERICAN WELL WORKS**

*General Offices* AURORA, ILLINOIS *and Factory*

# WORLD PRICES FOR GASOLINE, KEROSENE AND BUNKER FUEL OIL

By John H. Nelson

A comparison of world retail gasoline prices as given in Table A with those prevailing in the United States for the same period of time is obviously impossible without a wealth of detailed figures on transportation costs, taxes, duties and marketing overhead.

Certain general observations, however, can be made. First, probably 75 per cent of all the gasoline exported from the United States goes into consumption abroad at an average price equivalent to 35 cents per American gallon. Second the general trend of reduced wholesale prices common to world oil markets in 1930 has resulted in very few reductions in retail prices and many increased tax levies on gasoline. England has a tax of 8 cents per gallon to which is added one-half cent per gallon tax collection charges. In France a gallon of gasoline carries taxes totaling almost 15 cents per gallon or almost 2½ times its f.o.b. American Gulf port price. Other countries have similarly high and disproportionate taxes. Australia, for instance, has a tax of 14 cents per Imperial gallon with 17 cents a gallon duty on gasoline in containers. Contrary to American practice, little of the funds raised from gasoline taxes are utilized in road building or maintenance but go into the general revenue treasury.

All the oil-distributing companies in Australia in August announced increases in prices of kerosene and lubricating oils to cover the new primage duty and sales tax. The new prices of kerosene range from 1 shilling 2⅞ pence an imperial gallon to 12 shillings 6 pence a case, with discounts for cash payment. Wholesale prices for lighting kerosene are from 1 shilling 1½ pence a gallon for bulk kerosene to 13 shillings 6 pence a case, with discounts. Motor oils have been increased 3 pence a gallon and other lubricating oils have increased slightly, depending on demand. Turpentine substitute has also been increased in most cases. The increases in kerosene prices were general, but on lubricants it is understood that some of the independent dealers have retained old prices, or even reduced them. So far retail prices have shown no change.

### London Lowest Priced Zone

In London, which is the lowest priced zone, gasoline now costs 1 shilling 4½ pence (33 cents) a gallon, instead of 1 shilling 6½ pence. In the highest zone, the north of England, the new price is 1 shilling 5½ pence. Price fluctuations in England, our largest export markets during the past six years, have been as follows:

| | Per gallon |
|---|---|
| January, 1924 | $0 47 |
| September 4, 1924 | .39 |
| September 16, 1924 | .37 |
| February, 1926 | .41 |
| December, 1926 | .37 |
| March, 1927 | .31 |
| April 4, 1927 | .29 |
| August, 1927 | .27 |
| March, 1928 | .25 |
| April, 1928 | .33⅓ |
| March, 1929 | .38 |
| October, 1929 | .37 |

The increase in April, 1928, was due to the imposition of the 8-cent gasoline tax, plus one-half cent charged by the companies for collection of tax and additional costs.

### Price Breaks in Germany

After remaining stable for almost six months, prices of gasoline in Germany broke twice in less than two weeks. A lower schedule went into effect September 18, 1930, and again effective September 29, 1930.

The latest drop occurred as a result of the dissolution of the local gasoline convention, associating some 35 oil trading companies in uniform price agreement. The largest companies were forced into the open market because of underbidding by independents, supplied by cheaper imports, notably from the United States, Russia and Rumania.

Thus, effective September 29, 1930 official prices of gasoline were dropped from 1 to 2 pfennigs per liter at tank stations throughout Germany while the price of benzol and mixtures went down from 1 to 3 pfennigs.

It is interesting to note that the prices of Russian gasoline have not been an important factor in upsetting markets abroad in 1930 to date that they were in previous years. The breakup of several European trade agreements, however, during recent months and the new policy of Petroleum Exporters Association, Inc., in not posting export prices do not indicate stabilized markets for the immediate future.

Data in Tables A and B have been taken from reports of the United States Bureau of Foreign and Domestic Commerce. Table C data are taken from British sources.

**TABLE C—WORLD PRICES FUEL OIL (C) AND BUNKER COAL**

| Port— | Fuel oil (ton) | Coal* |
|---|---|---|
| Abadan | £3/ 0/ 0 | .... |
| Aden | £3/12/ 6 | 33/6 |
| Alexandria | £3/12/ 6 | .... |
| Algiers | £3/12/16 | 28/6 |
| Amsterdam | $12.00 | 18/0 |
| Amba | $1.05 bbl. | .... |
| Balboa | $1.20 bbl. | .... |
| Batavia | £3/10/ 0 | .... |
| Bermuda | $2.10 bbl. | .... |
| Bombay | £3/15/ 0 | †19⅝ |
| Buenos Aires | £3/ 2/ 0 | 46/0 |
| Cape Town | £4/ 2/ 6 | .... |
| Dunkirk | £3/12/ 6 | .... |
| Gibraltar | £3/12/ 6 | 29/6 |
| Halifax | $1.30 bbl. | $7.77 |
| Havre | £3/12/ 6 | 27/6 |
| Kobe | £3/10/ 0 | .... |
| Lisbon | £3/12/ 6 | 28/6 |
| Montreal | $1.55 bbl. | $7.50 |
| Naples | £3/12/ 6 | 29/0 |
| Oslo | £3/ 7/ 6 | .... |
| Port Said | £3/12/ 6 | 37/0 |
| Shanghai | £3/ 5/ 0 | 28/0 |
| Sydney | £3/17/ 6 | 37/3 |
| Tampico | $1.05 bbl. | .... |
| Trieste | £3/12/ 6 | .... |
| Valparaiso | $2.00 bbl. | .... |
| Wellington | £3/17/ 6 | .... |
| Yokahama | £3/10/ 0 | .... |

*Shillings pence per ton. †Rupees.

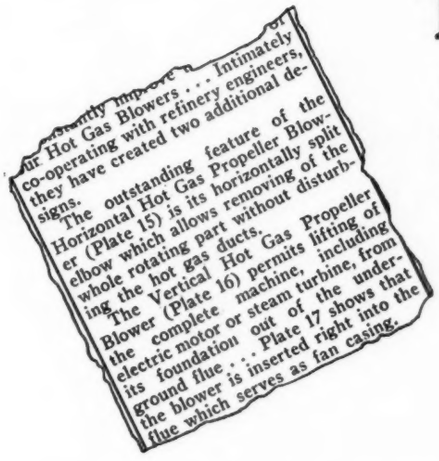
**TABLE A—WORLD RETAIL GASOLINE PRICES, 1930**

| Country and city: | Price in U. S. cents per gallon Jan., 1930 | Mar., 1930 | June, 1930 | Sept., 1930 |
|---|---|---|---|---|
| Algeries | 28.0 | .... | .... | .... |
| Angola— | | | | |
| Loanda | 37.7 | .... | .... | .... |
| Argentine— | | | | |
| Buenos Aires[1] | 35.1-48.1 | *32.1-†37.8 | *28.9<br>†35.3-43.3 | *29.5 |
| Australia‡[2]— | | | | |
| Sydney | 46.5-48.6 | .... | .... | *48.7-50.7<br>†51.7-53.7 |
| Adelaide | 46.5-48.6 | .... | *48.8-50.8<br>†57.0-59.0 | .... |
| Adelaide, Sydney, Perth | .... | *48.8-50.8<br>†57.0-59.0 | .... | .... |
| Austria— | | | | |
| Vienna[3] | 25.5 | *25.5 | *25.5 | 27.5 |
| Belgium— | | | | |
| Brussels[4] | .... | .... | *31.3 | 29.7 |
| Bolivia— | | | | |
| La Paz | 64.8 | †64.8 | †64.8 | †54.0 |
| Brazil— | | | | |
| Rio de Janeiro | 42.7 | †*41.6 | *44.3 | *45.8 |
| Para | .... | .... | .... | †51.0 |
| Porto Alegre[5] | .... | .... | .... | †54.0 |
| British Guiana— | | | | |
| Georgetown | 61.0 | .... | .... | .... |
| British Malaya‡— | | | | |
| Singapore | 42.8-44.5 | †*42.4 | *28.3-29.4 | *43.5 |

(Continued on Next Page)

# Two New Designs

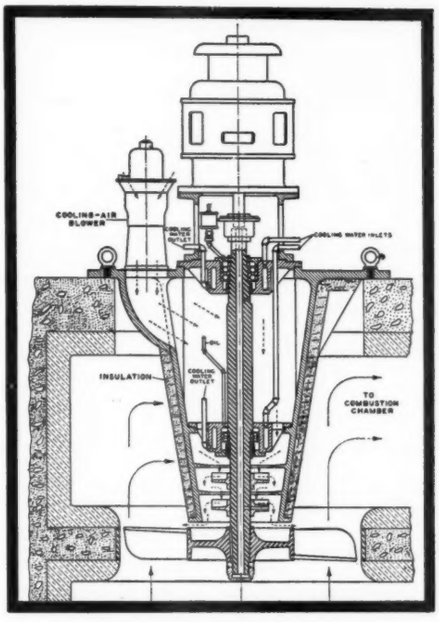
## for Recirculation of Hot Flue Gases
## Coppus Fans for Cracking Process
## Unique in Practical Operation!



...ur Hot Gas Blowers . . . Intimately ...ently improved ... co-operating with refinery engineers, they have created two additional designs.

The outstanding feature of the Horizontal Hot Gas Propeller Blower (Plate 15) is its horizontally split elbow which allows removing of the whole rotating part without disturbing the hot gas ducts.

The Vertical Hot Gas Propeller Blower (Plate 16) permits lifting of the complete machine, including the electric motor or steam turbine, from its foundation out of the underground flue . . . Plate 17 shows that the blower is inserted right into the flue which serves as fan casing.




*Coppus Vertical Hot Gas Propeller Blower for Cracking Process.*

*Coppus Hot Gas Propeller with horizontally split elbow.*

Modern refining methods call for fans of toughest metal . . . designed to meet specific requirements in the cracking process . . . sturdy fans to resist the corrosive action of hot gases . . . give vibrationless and economical operation.

In the cracking process where duties are especially severe, Coppus Hot Gas Blowers are establishing a new record for reliability and economy.

The two new fans mentioned in the editorial clipping are the outgrowth of concentrated effort to supply the industry with the proper types of fans for special applications.

*Our bulletin "Coppus Equipment for Oil Refineries" gives detailed description of these two fans. Where shall we send your copy?*

◆ ◆ ◆ ◆

## Coppus Engineering Corporation

343 Park Ave. Worcester, Mass.

# PERFECT LUBRICATION IS INSURED

*Single Feed Metal Body Type. Crank provided for charging lines.*

**If Hills-McCanna Lubricators are installed on your equipment you can be certain that the correct amount of oil is being delivered to points that need it.**

## SINGLE PLUNGER DOES IT

**The single acting plunger pumping principle of Hills-McCanna Lubricators insures a continuous flow of clean fresh oil to distant bearings under pressure.**

**Types available for Centrally Controlled or Individual Systems.**

***Catalog on request.***

HILLS-McCANNA CO.
2351 Nelson St.
CHICAGO

HILLS-McCANNA
*Lubricators*


| Country and city: | Price in U. S. cents per gallon | | | |
|---|---|---|---|---|
| | Jan., 1930 | Mar., 1930 | June, 1930 | Sept., 1930 |
| **Algeria—** | | | | |
| **British West Indies—** | | | | |
| Barbados | ..... | ..... | 41.0 | ..... |
| **Bulgaria—** | | | | |
| Sofia | ..... | †35.9 | *35.5 | *29.8 |
| **Canada†§—** | | | | |
| Calgary‖ | 32.0 | 32.0 | *32.0 | *32.0 |
| Edmonton‖ | 36.0 | 36.0 | *36.0 | *36.0 |
| Fort William‖ | 31.0 | 31.0 | *31.0 | *31.0 |
| Halifax, Nova Scotia‖ | 32.0-35.0 | 32.0 | ..... | ..... |
| Montreal‖ | 29.0-32.0 | 29.0 | *29.0 | *29.0 |
| Ottawa‖ | 23.0-26.0 | 28.0-31.0 | *28.0 | *28.0 |
| Regina‖ | 33.0 | 33.0 | *35.0 | *35.0 |
| Toronto‖ | 28.0-31.0 | 28.0 | *28.0 | *28.0 |
| Vancouver‖ | 30.0-32.0 | 30.0 | *30.0 | *32.0 |
| Winnipeg‖ | 28.0 | 28.0 | *30.0 | *30.0 |
| **Ceylon‡** | | | | |
| Colombo | 46.8 | ..... | ..... | ..... |
| **Chile—** | | | | |
| Santiago and Valparaiso | 39.3-43 9 | ..... | ..... | ..... |
| Santiago[9] | ..... | *39.0-43.6 | ..... | [30]41.2-45.8 |
| First grade | ..... | ..... | 43.6 | ..... |
| Second grade | ..... | ..... | 38.9 | ..... |
| **China—** | | | | |
| Shanghai | [11]27.4-29.5 | †21.0-22.0 | [33]*19.8-20.6 | *34.2-35.2 |
| | | | †20.5-21.3 | †35.5-36.3 |
| Mukden | ..... | †36.5-38.9 | ..... | †38.9-40.2 |
| Harbin | ..... | †37.8-40.5 | ..... | †29.1-31.2 |
| Peiping | ..... | ..... | 28.0-32.0 | ..... |
| **Chosen (Korea)—** | | | | |
| Seoul | 28.6-34.4 | [13]†34.2-36.7 | †28.6 | †29.7-33.9 |
| | | [14]†28.4-29.8 | | |
| **Colombia—** | | | | |
| Bogota | 61.7 | [15]60.0 | [16]*58.0 | [17]55.0 |
| **Costa Rica—** | | | | |
| San Jose | 43.8 | *43 8 | *47 5 | *43 7-47.0 |
| | | | †48.7 | †45.0-48.7 |
| **Cuba—** | | | | |
| Havana | 28.0 | [18]28.0 | 27.0 | 26.0 |
| **Czechoslovakia—** | | | | |
| Prague | 28.0 | 30.7 | 30 0 | *32.0 |
| **Cyprus†** | .... | ..... | ..... | †46.5 |
| **Denmark—** | | | | |
| Copenhagen | 30.3 | *30.3 | 30.0 | *30.5 |
| **Ecuador—** | | | | |
| Guayaquil | [19]34.0-41.0 | [20]†34.0-40.0 | [21]*39.0 | [22]†34.0-40.0 |
| **Egypt—** | | | | |
| Cairo | .... | [23]†39.0 | [24]*38.7 | ..... |
| | | | †43.7 | |
| Alexandria | .... | ..... | *37.5 | ..... |
| Port Said | .... | ..... | †42.5 | *34.0 |
| **Estonia—** | | | | |
| Tallinn | .... | ..... | *30.3 | ..... |
| **Ethiopia—** | | | | |
| Addis Ababa | 86.0-91.0 | *69.6-72.4 | †63.5 | †81.0 |
| **Finland—** | | | | |
| Helsingfors | 29.1 | 28.6 | 31.5 | 29.6 |
| **France—** | | | | |
| Lyon | 35.6-37.0 | *36.5-42.5 | *34.8 | *37.2 |
| Strasbourg | 36.1 | 34.7 | 36.0 | 36.0 |
| Paris | 34.3-35.8 | ..... | ..... | 31.1-34.1 |
| **French Indo China:** | | | | |
| Saigon | ..... | ..... | *32.9 | ..... |
| | | | †36.7 | |
| **Germany—** | | | | |
| Munich | 28.9 | *30.8 | [25]30.8 | [26]35.2 |
| Breslau | 31.5 | [27]*31.7 | [28]31.5 | [29]*35.9 |
| Frankfort | 30.0 | [30]30.0 | [31]30.0 | ..... |
| Cologne | 26.2 | [32]*28.9 | [33]28.9 | [34]23.4 |
| Leipzig | ..... | [35]*30.7 | [36]30.7 | [37]30 8 |
| Berlin | ..... | ..... | [38]27.0 | [39]*31.5 |
| **Greece†—** | | | | |
| Athens | 39.0 | *39.0 | 46.0 | 49.5 |
| **Guatemala—** | | | | |
| Guatemala | [40]39.0 | ..... | 34 0 | 40.0 |
| **Haiti—** | | | | |
| Port au Prince | ..... | 35.0 | ..... | ..... |
| **Hungary—** | | | | |
| Budapest | 25.4 | 22.5-22.8 | ([41]) | 13.3 |
| **India‡—** | | | | |
| Calcutta | 39.0 | †27.3-41.0 | 42.8 | †43.1 |
| **Iraq—** | | | | |
| Baghdad | 30.0-36 0 | [42]‡43 5 | *36.0 | [43]*35.8 |
| **Irish Free State—** | | | | |
| Dublin | 35.4 | *35.4 | 35.4 | 35.4 |
| Rest of Free State | 37.4 | ..... | ..... | ..... |
| **Italy—** | | | | |
| Genoa | 40.7 | ..... | ..... | ..... |
| Milan | ..... | ..... | 40 5 | ..... |
| **Japan—** | | | | |
| Tokyo | 21.9-25.7 | ..... | ..... | *21.7 |
| Yokohama | ..... | 27.0 | ..... | ..... |
| Kobe | ..... | *24.5-28.4 | 26.5-34.5 | ..... |
| | | †27.0-31.9 | | |
| Nagoya | ..... | [44]*26.5 | ..... | ..... |
| **Java—** | | | | |
| Batavia | 36.4 | ..... | ..... | ..... |
| **Kenya†—** | | | | |
| Nairobi | 68.0 | ..... | †69.2 | †69.2 |
| **Latvia—** | | | | |
| Riga | 38.0 | ..... | *34.7 | ..... |
| **Liberia—** | | | | |
| Monrovia | ..... | ..... | †43.2 | ..... |
| **Lithuania—** | | | | |
| Kovno | 34.5 | *26.5 | *24.6 | 28.4-30.9 |
| **Luxemburg—** | | | | |
| Luxemburg | 29.0-33.6 | *29.1-31.8 | *20.0-34.2 | ..... |
| **Madagascar—** | | | | |
| Tananarive | 55.0-63.0 | 55.0-63.0 | †54.0 | †54 0 |
| **Mexico—** | | | | |
| Vera Cruz | 31.8 | ..... | ..... | ..... |
| Mazatlan | 28.5 | ..... | ..... | ..... |
| Guadalajara | [45]33.4 | [46]*33.4 | [47]33.4 | [48]*32 5 |
| Mexico City | ..... | [49]*28.9 | ..... | *30 0 |
| **Mozambique†—** | | | | |
| Lourence Marques | 43.2 | ..... | ..... | ..... |
| **Netherlands—** | | | | |
| The Hague | 27.0 | 27.0 | 27 0 | 27.0 |
| Amsterdam | ..... | 27.4 | ..... | ..... |
| **Netherland East Indies—** | | | | |
| Batavia | [50]*36.3 | . . . | *34.5 | [51]*36.4 |
| **New Zealand‡—** | | | | |
| Wellington | ..... | [52]*46.9-49.0 | *46.9-49.0 | .... |
| **Nicaragua—** | | | | |
| Bluefields | 42.0 | †40.0 | †42.0 | †44.0 |
| **Norway—** | | | | |
| Oslo | [53]27.0 | [54]23.4 | [55]25.2 | [56]25.2 |
| **Panama—** | | | | |
| Panama City and Colon | 32.0 | ..... | ..... | ..... |
| **Paraguay—** | | | | |
| Asuncion | 40.4 | ..... | ..... | †30.7 |
| **Persia‡—** | | | | |
| Teheran | 52.2-53.0 | †50.8 | †52 6 | †52.6-54 1 |
| Kazvin | 52.2-54.6 | ..... | ..... | ..... |
| Isfahan | 40.9-48.0 | ..... | ..... | ..... |
| Meshed | 61.4-67.2 | ..... | ..... | ..... |
| Bushire | 36.2 | ..... | †35.7 | ..... |
| Tabriz | 42.0-46.2 | ..... | ..... | ..... |

(Continued on Next Page)

# MALLEABLE *heat-control*

**CAST IRON**
*Screwed—Flanged—*
*Drainage—Sprinkler*

**ELECTRIC CAST STEEL**
*Screwed—Flanged*

**MALLEABLE**
*Standard—Extra Heavy*
*Hydraulic—Oil Country*
*Railroad 300 lb.—Fire Line*

**STOCKHAM RETURN BEND**
*For Cracking Stills*

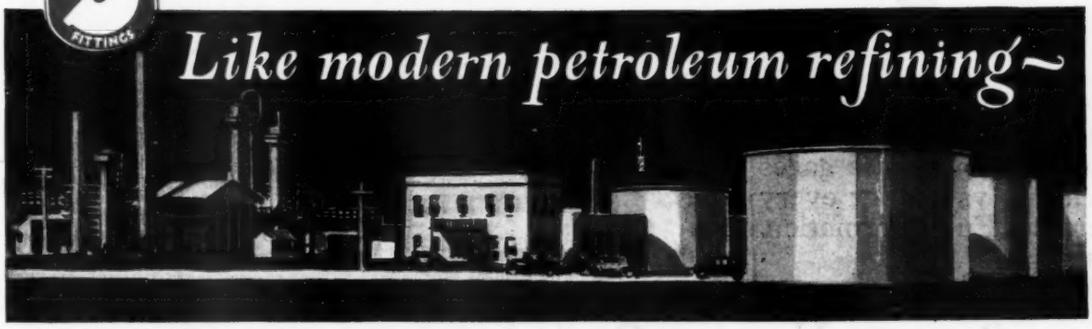
**Heat-control is a vital part of the process of petroleum refining—but no less essential is heat-control in the production of malleable iron fittings for the severe service of oil field use.**

**The superiority of Stockham Malleables is largely due to the accurate control of the heat treatment of the metal. Skill and constant watchfulness of the battery of recording pyrometers shown in the illustration insure the outstanding strength of Stockham Malleables, which make them stand the shock, vibration and temperature changes of oil field service.**

**In addition to a full line of oil field malleables, Stockham Fittings are available in cast iron and electric cast steel for every petroleum field requirement.**

**STOCKHAM PIPE & FITTINGS CO.,** ***Birmingham, Ala.***

***Boston, New York, Philadelphia, Chicago, Houston, Los Angeles***



JERGUSON

# REFLEX GAGES

have been used for steam boilers for 25 years and are now being used by leading oil companies for indicating oil levels in tanks, towers, stills, etc.

The *empty* space appears WHITE

The *liquid* shows BLACK

They are safe and durable at the highest pressures and temperatures. We can furnish gages with or without valves for every type of service. Full information upon request.

JERGUSON GAGE & VALVE CO.

MYSTIC AVE. AND NORTHERN ARTERY
SOMERVILLE, MASS.

| Country and city: | Price in U. S. cents per gallon — Jan., 1930 | Mar., 1930 | June, 1930 | Sept., 1930 |
|---|---|---|---|---|
| Peru‖— | | | | |
| Lima | 40.0-43.0 | [57]*40.0 | [58]†40.0 | [59]*39.0 †41.0 |
| Philippine Islands**— | | | | |
| Manila | 38.0 | [60]34.8 | [61]31.0 | ..... |
| Poland— | | | | |
| Warsaw | 34.9 | *36.1 | *36.1 | *36.1 |
| Porto Rico*†— | | | | |
| San Juan | 28.0 | [62]*28.0 | [63]*27.0 | *22.0 |
| Rumania— | | | | |
| Bucharest | ..... | 29.4 | ..... | ..... |
| Senegal— | | | | |
| Dakar | 41.6 | †41.6 | †40.3 | †38.8 |
| Society Islands— | | | | |
| Tahiti | 30.0-32.0 | †31.0-38.0 | †32.0 | †31.0 |
| Spain— | | | | |
| Madrid | ..... | [64]32.0 | [65]29.1 | [66]*27.0 |
| Sweden— | | | | |
| Stockholm | ..... | *27.4 | 27.4 | 27.4 |
| Switzerland— | | | | |
| Berne | 40.2 | ..... | [67]40.4 | ..... |
| Zurich | 40.2 | *40.1 | 40.4 | 30.4 |
| Turkey— | | | | |
| Istanbul | 33.5-38.4 | ..... | †39.4 | †39.4 |
| Smyrna | ..... | *41.8 | ..... | ..... |
| Union of South Africa— | | | | |
| Johannesburg | 55.0 | 55.0 | *55.0 | *50.0 |
| Durban | 40.0 | 40.0 | *40.0 | *40.0 |
| Capetown | 40.0 | 40.0 | *40.0 | *40.0 |
| United Kingdom‡— | | | | |
| England—London | 34.5 | ..... | ..... | *37.0 |
| Rest of England and Wales | 35.5 | ..... | ..... | ..... |
| Scotland, North | 37.6 | ..... | ..... | ..... |
| Scotland, South | 35.5 | ..... | ..... | ..... |
| Northern Ireland—Belfast | 37.6 | ..... | ..... | ..... |
| Rest of northern Ireland | 38.6 | ..... | ..... | *39.0 |
| Birmingham | ..... | [68]*32.0-38.0 | *31.0-38.0 | ..... |
| Rest of England, Wales and southern Scotland | ..... | ..... | ..... | *38.0 |
| Uruguay— | | | | |
| Montevideo | [69]37.2 | ..... | [70]*36.6-48.9 | ..... |
| Venezuela— | | | | |
| Caracas | 32.8 | *34.0 | *34.0 | ..... |
| Yugoslavia— | | | | |
| Belgrade | 45.2 | [71]*44.9 | *38.8 | *43.5 |

*In bulk. †In tins. ‡Price per imperial gallon which is approximately equivalent to 1.2 U. S. gallons. §Gasoline price includes tax of 5 cents per gallon. ¶Gasoline price includes tax of 3 cents per gallon. ‖Gasoline price includes a federal tax of 12 cents per gallon and a municipal tax of 4 centavos. **Gasoline price includes tax of 7.6 cents a gallon. *†Gasoline price includes a sales tax of 4 cents per gallon.

[1]Aviation gasoline retails in Buenos Aires for 49.4 cents (in January), 44.5 cents in tins (in June), 45.6 cents in tins (in September).

[2]Australian prices of gasoline include a 1d customs duty and a 2d highway tax for March, 1930; Australian prices of gasoline include a 1d customs duty and a 2d road tax for June, 1930; Australian gasoline prices include the commonwealth tax of 8 cents per gallon —September, 1930.

[3]Benzol retails in Vienna for 42.4 (in June), and 42.4 to 43.4 (in September).

[4]Aviation gasoline retails in Brussels for 33.9 per gallon (for June) and 32.3 cents per gallon (for September).

[5]Brazilian price of gasoline includes a highway tax of approximately 3 cents per gallon.

[6]Aviation gasoline retails in Porto Alegre for 60.2 cents per gallon in tins.

[7]Aviation gasoline retails in Singapore at 52.5 cents per imperial gallon in tins.

[8]June, 1930—Ethyl Gasoline is quoted at 3 cents higher per imperial gallon at all points in Canada. September, 1930—Ethyl Gasoline is quoted at 3 cents higher per imperial gallon at all points in Canada.

[9]Chilean price of gasoline includes a highway tax of 2.4 cents per gallon.

[10]Santiago gasoline prices include import duty and bridge and road taxes amounting to 11.9 cents per gallon.

[11]Aviation gasoline retails in Shanghai for 37 cents per gallon.

[12]24.1 cents per gallon.

[13]High grade.

[14]Second grade.

[15]Bogota price of gasoline includes a 5-cent national tax and a 1-cent municipal tax.

[16]Bogota price of gasoline includes a 5-cent government tax and a 1-cent city tax.

[17]Bogota gasoline price includes tax amounting to 6 cents per gallon.

[18]Benzol mixture retails in Havana for 33 cents per gallon.

[19]Aviation gasoline retails in Guayaquil for 48 and 54 cents per gallon.

[20]Aviation gasoline retails in Guayaquil at 48-60 cents per gallon in tins.

[21]Aviation gasoline retails in Guayaquil at 48.0 to 54.0 cents per gallon in tins.

[22]Aviation gasoline retails in Guayaquil for 54 cents a gallon in tins.

[23]Aviation gasoline retails in Cairo at 57.5 cents per gallon in tins.

[24]Aviation gasoline retails in Egypt for 62.0 cents per imperial gallon in tins.

[25]Benzol mixtures retail in Leipzig for 35.3 cents per gallon.

[26]Benzol gasoline mixture retails in Munich for 39.6 cents per gallon.

[27]Benzol mixture retails in Breslau for 36.3 cents per gallon.

[28]Benzol mixtures retail in Breslau for 35.9 cents per gallon.

[29]Benzol gasoline mixtures retails in Breslau for 40.4 cents per gallon.

[30]Benzol mixture retails in Frankfort for 34.0 cents per gallon.

[31]Benzol mixtures retail in Frankfort for 34.0 cents per gallon.

[32]Benzol mixture retails in Cologne for 33.4 cents per gallon.

[33]Benzol mixtures retail in Cologne for 33.4 cents per gallon.

[34]Benzol gasoline mixture retails in Cologne for 37.9 cents per gallon.

[35]Benzol mixtures retail in Leipzig for 36.7 cents per gallon.

[36]Benzol mixtures retail in Leipzig for 35.3 cents per gallon.

[37]Benzol gasoline mixture retails in Leipzig for 35.3 cents per gallon.

[38]Benzol mixtures retail in Berlin for 31.5 cents per gallon.

[39]Benzol mixture retails in Berlin for 36 cents per gallon.

[40]Aviation gasoline retails in Guatemala for 47 cents per gallon.

[41]Motor benzol retails in Budapest for 32.9 cents per gallon.

[42]Baghdad gasoline includes a 9-cent excise tax and a 2-cent municipal tax.

[43]Baghdad gasoline price includes a 9-cent excise tax and a 2-cent city tax.

[44]High test gasoline retails in Nagoya for 31.1 cents per gallon.

[45]Aviation gasoline retails in Guadalajara for 42.2 cents per gallon.

[46]Aviation gasoline retails in Guadalajara for 42.2 cents per gallon.

[47]Aviation gasoline retails in Guadalajara for 35.2 cents per gallon.

[48]Aviation gasoline retails in Guadalajara for 34.4 cents per gallon.

[49]Aviation gasoline retails in Mexico City for 38.1 cents per gallon.

[50]The excise tax on gasoline is 10.4 cents.

[51]The N.E.I. excise tax on gasoline equals 10.4 cents per gallon.

[52]Gasoline price includes a duty of 8 cents per gallon.

[53]Aviation gasoline retails in Oslo for 32.0 cents per gallon.

[54]Aviation gasoline retails in Oslo for 28.0 cents per gallon.

[55]Aviation gasoline retails in Oslo for 30.0 cents per gallon.

[56]Aviation gasoline retails in Oslo for 30.0 cents per gallon.

[57]Lima gasoline price includes a consumption tax of 12 cents per gallon.

[58]Lima gasoline price includes a federal tax of 12 cents and a city tax of 1 cent.

[59]Lima gasoline price includes a federal tax of 12 cents and a city tax of 1 cent.

[60]Manila gasoline price includes a tax of 7.6 cents per gallon.

[61]Manila gasoline price includes a tax of 7.6 cents per gallon.

[62]Gasoline price includes a sales tax of 4 cents per gallon.

[63]San Juan gasoline price includes a tax of 4 cents per gallon.

[64]Benzol for aviation retails in Madrid for 48.1 cents per gallon.

[65]Aviation gasoline retails in Madrid for 33.9 cents per gallon and benzol for 42.2 cents per gallon.

[66]Aviation gasoline retails in Madrid for 31.3 cents per gallon.

[67]Ethyl Gasoline retails at 46.2 cents per gallon in Berne.

[68]Gasoline price for Birmingham includes a road tax of 8 cents.

[69]Aviation gasoline retails in Montevideo for 55.9 cents per gallon.

[70]Aviation gasoline retails in Montevideo for 55.2 cents per gallon.

[71]Gasoline price in Belgrade includes a consumption tax of 16 cents per gallon.

(Continued on Next Page)

# SUBSTITUTES CANNOT *give the same results*

Since the granting of the *original* "Stainless" Patents, numerous alloys have been exploited which are often loosely and improperly referred to as "Stainless Steel." Some makers of these metals are prone to capitalize the success of *Genuine* "Stainless" and to mislead the fabricator into thinking that a straight chrome iron is not obtainable in the particular physical properties required in his product. Nothing is further from the truth. Stainless Steel is available in Brinell 150 to 600 and tensile strength 60,000 to 250,000 pounds per square inch. It is lower priced than the majority of its competitors and provides greater toughness and richer beauty than is obtainable in any other modern metal . . . It *pays* to know about "Stainless" . . . Our booklets "Stainless in Industry" and "Stainless in the Home" will give you the facts . . . Write for them.

*genuine*

**STAINLESS ★ STEEL ★**

*is manufactured only under the patents of*

AMERICAN STAINLESS STEEL COMPANY

Commonwealth Bldg. · Pittsburgh, Pa.

# BUCKEYE'S NEW MODEL 48

## *For the Largest Pipe Lines now Required*

*(6 Cutting Widths: 22" and 24"; 26" and 30"; 37" and 40".*
*3 Cutting Depths: 6½', 7½' and 8½')*

Successful pipe-liners for over 30 years — that's Buckeye. Long and profitable performance has made them nationally known as "*the* ditchers that meet *all* oil and gas field trench requirements."

Following an established policy of constant improvement, Buckeye now offers powerful and speedy Model 48 for the biggest pipe line trenches. Its ruggedness is re-inforced with remarkably easy control, favorite operating features and thorough ability to deliver a surprising amount of completed ditch at decidedly low cost. May we refer you to actual owners for evidence direct?

Model 48 automatically becomes leader in its field just as its smaller brothers are in theirs. That Buckeyes *are* the preferred standard of the pipe line industry is proven positively by three indisputable facts: *First*, more Buckeyes are engaged throughout the world's oil and gas fields than all other makes combined. *Second*, probably 95 per cent of all major American cross-country pipe lines are laid in Buckeye-cut ditches. *Third*, many large pipe line contractors use them exclusively, while others employ them in large numbers.

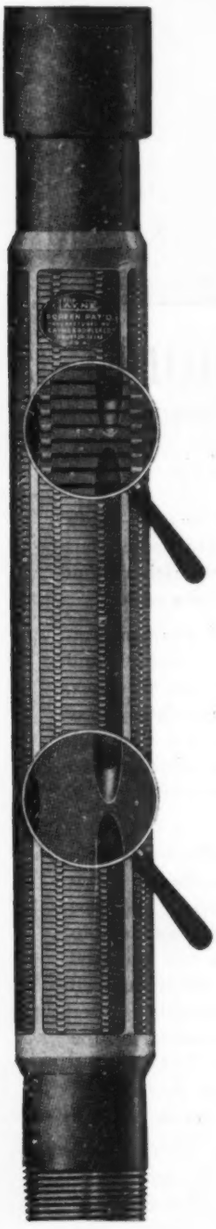
Write for our attractive new Catalog, "BUCKEYE —The Pipe Liner." It contains specification, mechanical and service details of decided interest to every prospective pipe line ditcher owner and user.

THE BUCKEYE TRACTION DITCHER CO.
FINDLAY, OHIO

*There's a Buckeye Sales and Service Office near You*

*for over thirty years* **Buckeye**

# Definite RESULTS Evidenced BY PAST Performance the LAYNE



## MILLED GROOVE SCREEN

Large and important companies abroad and in this country will testify to the fact that the *Layne Milled Groove Screen* increases production from 33-1/3% to 100%. They will also testify that *Milled Groove* does not clog with mud and sand, prevents sand cutting, is a tonic to low pressure wells, and has the remarkable ability to safely stand 8,000 feet of drill pipe.

Tests by the Pittsburgh Testing Laboratory revealed the true great strength of oil industry's latest, greatest and most important invention, the *Layne Milled Groove Screen.*

Install the "greater production" *Layne Milled Groove Screen* instead of wishing you had.

Write, wire or phone for quick service, catalogue, or further information.

**The Layne & Bowler Co.**

Houston Texas

*Install Milled Groove Instead of Wishing You Had*

The Layne New York Co. 30 Church St., New York

The Layne & Bowler Corp. Los Angeles, Calif.

Vickers, Limited London, England


**TABLE B—WORLD RETAIL KEROSENE PRICES, 1930**

| Country and city: | Price in U. S. cents per gallon— Jan., 1930 | Mar., 1930 | June, 1930 | Sept., 1930 |
|---|---|---|---|---|
| Algeria— | | | | |
| Algeries | 21.0 | ..... | ..... | ..... |
| Angola— | | | | |
| Loanda | 31.5 | ..... | ..... | ..... |
| Argentina— | | | | |
| Buenos Aires | 35.1-48.1 | †33.8-36.3 | *27.4<br>†33.8-36.1 | ..... |
| Australia†— | | | | |
| Sydney | 42.5 | ..... | ..... | †38.0-31.9 |
| Adelaide | 40.9 | ..... | †41.0 | ..... |
| Adelaide, Sydney, Perth | ..... | †41.0 | ..... | ..... |
| Austria— | | | | |
| Vienna | 13.4 | 13.4 | *13.4 | 17.0-21.0 |
| Belgium— | | | | |
| Brussels | ..... | ..... | ..... | 21.2 |
| Bolivia— | | | | |
| La Paz | 61.0 | †68.1 | †68.1 | 48.8 |
| Brazil— | | | | |
| Rio de Janeiro | 30.3 | 29.2 | 37.6-44.3 | ..... |
| Para | ..... | ..... | ..... | †41.5 |
| Porto Alegre | ..... | ..... | ..... | †44.8 |
| British Guiana— | | | | |
| Georgetown | 72.0 | ..... | ..... | ..... |
| British Malaya†— | | | | |
| Singapore | 33.8-39.9 | †35.6-38.8 | †14.5-29.6 | †38.0 |
| Bulgaria— | | | | |
| Sofia | ..... | 28.4 | †28 6 | †28.4 |
| Canada†— | | | | |
| Calgary§ | 32.0 | 32.0 | ..... | 27.0 |
| Edmonton§ | 36.0 | 36.0 | ..... | 31.0 |
| Fort William§ | 31.0 | 31.0 | ..... | 28.0 |
| Halifax, Nova Scotia§ | 32.0-35.0 | 33.0 | ..... | ..... |
| Montreal§ | 29.0-32.0 | 25.0-35.0 | 28.0-32.0 | 30.0 |
| Ottawa§ | 25.0-30.0 | 30.0-35.0 | 29.0-30.0 | 30.0 |
| Regina§ | 33.0 | 33.0 | ..... | 30.0 |
| Toronto§ | 29.0-36.0 | 29.0-36.0 | 29.0-36.0 | 29.0 |
| Vancouver§ | 28.0 | 28.0 | 28.0 | 28.0 |
| Winnipeg§ | 28.0 | 28.0 | ..... | 25.0 |
| Ceylon†— | | | | |
| Colombo | 35.6 | ..... | ..... | ..... |
| Chile— | | | | |
| Santiago and Valparaiso | 36 2 | ..... | ..... | ..... |
| Santiago | ..... | 36 0 | 37.4 | 37.4 |
| China— | | | | |
| Shanghai | 17.9-21.9 | ..... | *15.3 | *24.9 |
| Mukden | ..... | †23.4-25.3 | ..... | †24.6-29.2 |
| Harbin | ..... | †24.9-26.2 | ..... | †23.4-24.4 |
| Chosen (Koren)— | | | | |
| Seoul | 33 9-35.4 | ‡†35.7<br>*†34.2 | †35 5 | †35.7-37.7 |
| Colombia— | | | | |
| Bogota | 57.8 | ..... | ..... | ..... |
| Costa Rica— | | | | |
| San Jose | 42 5 | †42 5 | †42.5-45.0 | †45.0-50.0 |
| Cuba— | | | | |
| Havana | 25.0 | 45.0 | 25.0 | ..... |
| Cyprus† | ..... | ..... | ..... | †28.3<br>*24.3 |
| Czechoslovakia— | | | | |
| Prague | 23.0 | 23.0 | 25.0 | *22.4 |
| Denmark— | | | | |
| Copenhagen | 25.3 | †25.3 | 25.3 | 25.4 |
| Ecuador— | | | | |
| Guayaquil | 30.0-37.0 | †28.0-35.0 | *32.0-35.0<br>†34.0-37.0 | †28.0-35.0 |
| Egypt— | | | | |
| Cairo | ..... | †19.0 | *13.7-†18.7 | ..... |
| Port Said | ..... | ..... | ..... | *14 0-†19 0 |
| Estonia— | | | | |
| Tallinn | ..... | ..... | 17 0 | ..... |
| Ethiopia— | | | | |
| Addis Ababa | 46.0-53 0 | †38 5-42.3 | †32.5-34.0 | †42 0 |
| Finland— | | | | |
| Helsingfors | 20.0 | 16 1 | 16.2 | 16.2 |
| France— | | | | |
| Lyon | 33.8-34.1 | *34 3 | *33.8 | 33.9 |
| Strasbourg | 34 0-44.4 | 34 0 | 34 0 | ..... |
| Paris | 27.7-29.2 | ..... | ..... | 31 0-33 2 |
| French Indo China— | | | | |
| Saigon | ..... | ..... | †28.5 | ..... |
| Germany— | | | | |
| Breslau | 23 4 | *23.6 | 22.8 | ..... |
| Frankfort | 34.0 | 35.0-41.0 | 36.0-40.5 | ..... |
| Cologne | 30.7 | 30.7 | 30.8 | 34.3 |
| Leipzig | ..... | 26.2 | 28.0 | 27.9 |
| Greece†— | | | | |
| Athens | 49.6 | †49 6 | 62.7 | †62.7 |
| Guatemala— | | | | |
| Guatemala | 42.5 | ..... | ..... | ..... |
| Haiti— | | | | |
| Port au Prince | ..... | 35.0 | ..... | ..... |
| Hungary— | | | | |
| Budapest | 22.5 | 15.9-16.3 | 15 6 | 15.7 |
| India†— | | | | |
| Calcutta | 25.0-38 8 | *21.8 | †26.8-40 3 | †26 9-40.5 |
| Iraq— | | | | |
| Baghdad | 14.0-29 0 | ‡†16.4-35.0 | †34 9 | †34.7 |
| Irish Free State— | | | | |
| Dublin | 32 3 | 32.4 | 32 4 | 32.3 |
| Rest of Free State | 32 3 | ..... | ..... | ..... |
| Italy— | | | | |
| Genoa | 43.9 | ..... | ..... | ..... |
| Japan— | | | | |
| Tokyo | 21.9-25.2 | ..... | ..... | †23 2-25.7 |
| Kobe | ..... | †29.4 | ..... | ..... |
| Java— | | | | |
| Batavia | 28.0-30.5 | ..... | ..... | ..... |
| Kenya†— | | | | |
| Nairobi | ..... | ..... | †46.3 | †46.3 |
| Latvia— | | | | |
| Riga | 16.1 | ..... | 17 6 | ..... |
| Liberia— | | | | |
| Monrovia | ..... | ..... | †39.6 | ..... |
| Lithuania— | | | | |
| Kovno | 19.0 | †26 0 | 19 3 | 20.8 |
| Luxemburg— | | | | |
| Luxemburg | 23.6 | *23.8 | *23.7 | ..... |
| Madagascar— | | | | |
| Tananarive | 43.0 | 43.0 | †41.0-43.0 | †39.0 |
| Mexico— | | | | |
| Vera Cruz | 26.5 | ..... | ..... | ..... |
| Mazatlan | 23.2 | ..... | ..... | ..... |
| Guadalajara | 29.7 | *29 8 | *31.7 | 31.0 |
| Mexico City | ..... | 25.4 | ..... | 31.0 |
| Mozambique†— | | | | |
| Lourence Marques | 33.4 | ..... | ..... | ..... |
| Netherlands— | | | | |
| The Hague | 21.0 | 21.0 | 21.0 | 21.0 |
| Amsterdam | ..... | 21.3 | ..... | ..... |
| Netherland East Indies— | | | | |
| Batavia | ..... | ‡†28.1-30.5 | ..... | †36.5-41.4 |
| Batavia, Java | ..... | ..... | †25.0-27.4 | ..... |
| New Zealand†— | | | | |
| Wellington | ..... | †40.4-50.0 | †40.4-50.0 | ..... |
| Nicaragua— | | | | |
| Bluefields | 40.0 | †39.0 | †39.0 | †38.0 |
| Norway— | | | | |
| Oslo | 21.0 | 19.5 | 20.5 | 20.5 |

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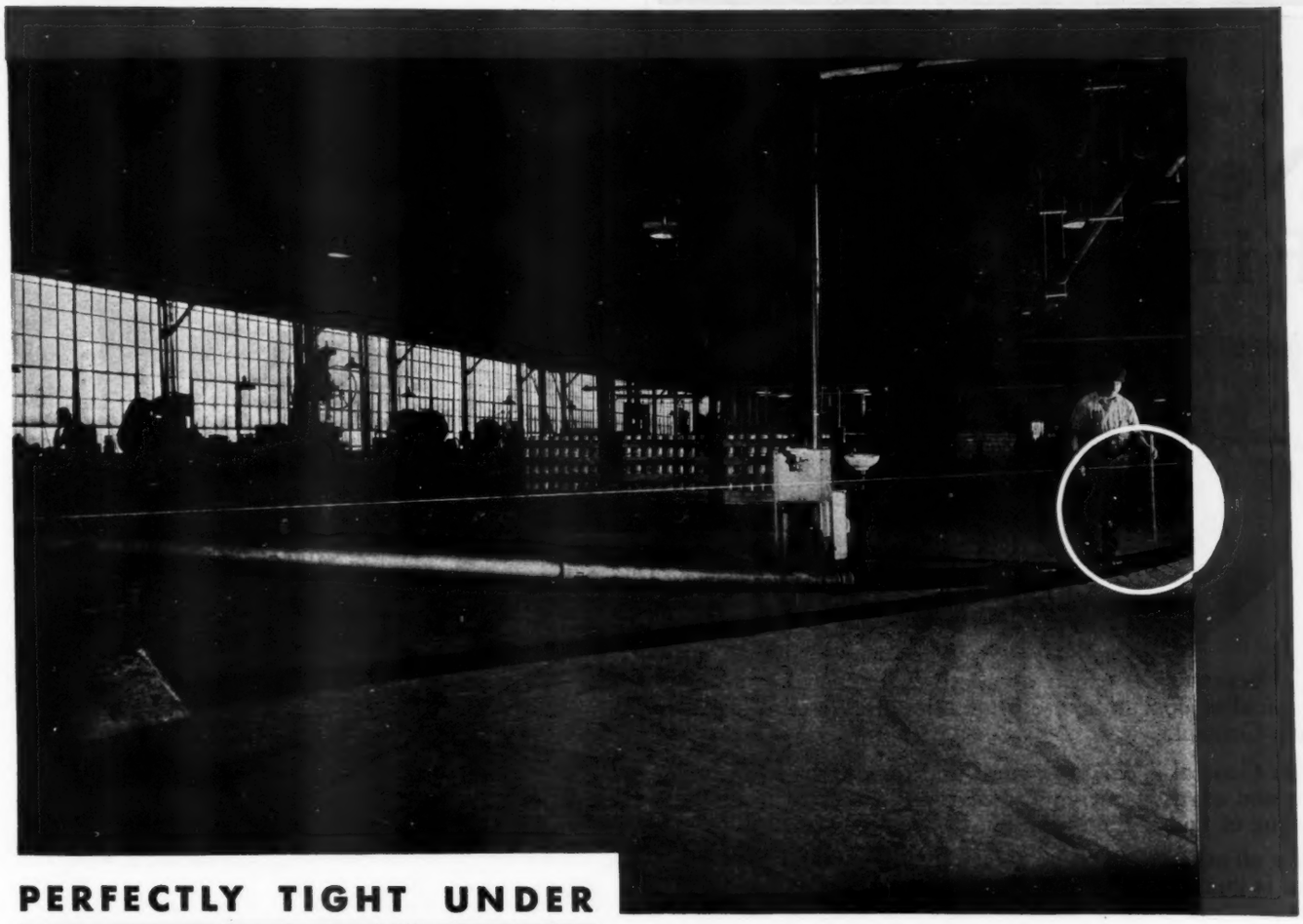


**PERFECTLY TIGHT UNDER**

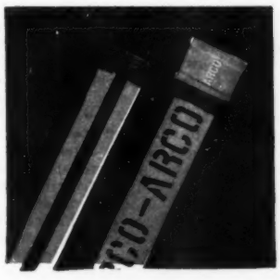
**1000 LBS. PRESSURE AFTER**

**2 FT. DEFLECTION IN 49 FT.**

# ARCO METAL PIPE

**VERTICALLY CAST—SEAMLESS**

**REGULARLY FURNISHED IN 12 FT. THREADED LENGTHS**




• Arco Metal Pipe insures permanence in any installation. It is easy to install, being worked as readily as steel or wrought iron pipe.

• Arco Metal Pipe is carried in stock and distributed by jobbers of plumbing, heating and mill supplies.

• Tests like the one above prove how easily Arco Metal Pipe can be handled under all kinds of conditions. After raising one end of the pipe so as to give a deflection of 2 feet it was subjected to 1000 lbs. pressure and found to be absolutely tight.

• Because the iron in Arco Metal Pipe is alloyed with nickel and chromium, its texture is uniform throughout the wall of the pipe, which insures its superior corrosion-resisting qualities, either at the bottom of its thread or at any point on its surface. It can be cut and threaded with standard, hand or power tools. The pipe is of the same dimensions as extra heavy wrought pipe and is furnished plain ends, threaded ends or beveled for welding. It can be welded at the factory or on the job.

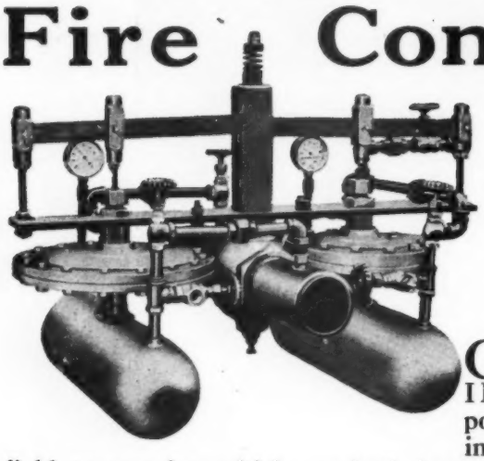
## AMERICAN RADIATOR COMPANY

*Arco Metal Pipe Division*

40 West 40th St., New York
1344 Broadway, Detroit
8th and Broadway, Cincinnati

816 So. Michigan Ave., Chicago
1294 E. 55th St., Cleveland
4201 Duncan Ave., St. Louis

# ..... Badgett's New Automatic Fire Control



CONFORMING with our policy of supplying reliable oil field accessories, which are both inexpensive and economical of operation, we offer our new automatic Gas Fire Control.

This Control is easy to install and inexpensive to operate and earns its original cost many times over in the saving of fuel and elimination of breakdown troubles.

Like all other Badgett products, this new Gas Fire Control is guaranteed. It works accurately on variation of gas pressure from 5 to 300 pounds, and is easily changed for any burner pressure by merely opening a needle valve, allowing the pressure to reach the desired point. The control is operated on gas until the desired steam pressure is reached when it automatically switches over to the steam side. The Badgett Gas Fire Control operates so perfectly that the steam pressure will not vary more than 2 to 4 pounds on drilling rigs. The diaphragm is built to withstand 600 pounds working pressure.

If you want to save boiler troubles, time, money, why not wire or telephone your supply house today to send you one or more Badgett Automatic Gas Fire Controls?

We can supply the New Automatic Gas Fire Control in either 2″ or 3″, single or double control. We recommend the single control be used only where the gas pressure does not vary in the line.

Southern Drilling Co., Oklahoma City
John Mabee, Tulsa
Loffland Bros., Tulsa
J. Henry, Duncan, Okla.
Summit Drilling Co., Tulsa
G. J. Beard, Duncan, Okla.
Hubbard & Wofford, Tulsa
Herman Wagener, Oklahoma City
Byers Drilling Co., Oklahoma City
A & B Drilling Co., Oklahoma City
Capitol Drilling Co., Oklahoma City
Prince & Prince, Electra, Texas
Clark & Cowden, Duncan, Okla.
Independent Oil Co., Oklahoma City
G. E. Gilberth, Oklahoma City
Golden & Cochran, Wink, Texas
Haynes Drilling Co., Wink, Texas
Murphy & Graham, Seminole, Okla.
Steinberg & Yerkee, Seminole, Okla.
Fain-McGaha, Wichita Falls, Texas
Alleson & Clevinger, Seminole, Okla.
Winkler & McQueen, Duncan, Okla.
Reynold Drilling Co., Seminole, Okla.
Manahan Drilling Co., Seminole, Okla.
Herndon Drilling Co., Seminole, Okla.
Hartman & Hamilton, Seminole, Okla.

You are not obligating yourself when you write for details.

*Sold through leading supply houses in the Mid-West and through the National Supply Co. in the State of California.*

## BADGETT STEAM LUBRICATOR COMPANY

CHICKASHA, OKLAHOMA


| Country and city: | Price in U. S. cents per gallon—Jan., 1930 | Mar., 1930 | June, 1930 | Sept., 1930 |
|---|---|---|---|---|
| Panama— | | | | |
| Panama City and Colon | 29.0 | ..... | ..... | ..... |
| Paraguay— | | | | |
| Asuncion | 35.9 | ..... | ..... | †29.1 |
| Persia‡— | | | | |
| Teheran | 28.0-30.4 | †28.5 | †29.6 | †30.6-31.2 |
| Kazvin | 25.2-27.3 | ..... | ..... | ..... |
| Isfahan | 29.4-31.5 | ..... | ..... | ..... |
| Meshed | 39.4-42.0 | ..... | ..... | ..... |
| Bushire | 21.0 | ..... | †24.2 | ..... |
| Tabriz | 24.1-28.5 | ..... | ..... | ..... |
| Peru‖— | | | | |
| Lima | 24.0-26.0 | †24.0 | †23.0 | †24.0 |
| Philippine Islands**— | | | | |
| Manila | 24.5 | †21.0 | †17.0 | ..... |
| Poland— | | | | |
| Warsaw | 27.7 | *27.6 | *27.6 | 27.6 |
| Porto Rico*†— | | | | |
| San Juan | 23.5-26.0 | 24.0-30.0 | †20.0 | †18.0-23.0 |
| Rumania— | | | | |
| Bucharest | ..... | 12.5 | ..... | ..... |
| Senegal— | | | | |
| Dakar | 37.2 | †37.2 | †37.1 | †35.3 |
| Society Islands— | | | | |
| Tahiti | 35.0-37.0 | †36.0-38.0 | †36.0-38.0 | †34.0 |
| Spain— | | | | |
| Madrid | ..... | 31.0 | 27.3 | 27.0 |
| Sweden— | | | | |
| Stockholm | ..... | 13.7-19.4 | 19.4 | ..... |
| Switzerland— | | | | |
| Berne | 29.0 | ..... | 29.3 | ..... |
| Zurich | 29.0 | 29.1 | 29.3 | 29.1 |
| Turkey— | | | | |
| Istanbul | 36.0-38.1 | ..... | †33.0 | †32.9 |
| Smyrna | ..... | *37.5 | ..... | ..... |
| Union of South Africa— | | | | |
| Johannesburg | 41.0-45.0 | 41.0-43.0 | †41.0-43.0 | †41.0-43.0 |
| Durban | 31.0-34.0 | 31.0-34.0 | †31.0-34.0 | †31.0-34.0 |
| Cape Town | 31.0-34.0 | 31.0-34.0 | †31.0-34.0 | †31.0-34.0 |
| United Kingdom‡— | | | | |
| England— | | | | |
| London | ..... | ..... | ..... | 24.0-26.0 |
| Birmingham | ..... | 24.0-28.0 | 24.0-28.0 | ..... |
| Uruguay— | | | | |
| Montevideo | 35.4 | ..... | *35.3 | ..... |
| Venezuela— | | | | |
| Caracas | 51.0 | 43.5 | 43.4 | ..... |
| Yugoslavia— | | | | |
| Belgrade | 57.0 | ³†45.1 | †46.0 | †41.2 |

*In bulk. †In tins. ‡Price per imperial gallon which is approximately equivalent to 1.2 U. S. gallons. §Gasoline price includes tax of 5 cents per gallon. ¶Gasoline price includes tax of 3 cents per gallon. ‖Gasoline price includes a federal tax of 12 cents per gallon and a municipal tax of 4 centavos. **Gasoline price includes tax of 7.6 cents a gallon. *†Gasoline price includes a sales tax of 4 cents per gallon.

[1]High grade.
[2]Second grade.
[3]Baghdad kerosene price includes a 4-cent excise tax.
[4]The excise tax on kerosene is 5.2 cents per gallon.
[5]Kerosene price includes a monopoly tax of 21 cents per gallon.

## IMPROVED AND SPEEDIER TANKERS ARE USED

(Continued from Page 154)

movement back to normalcy in 1922 after the hectic war days, there were 7,000,000 deadweight tons of ocean-going oil tankers in operation; in 1923, this total had increased to 7,900,000 deadweight tons, and present tonnage is estimated to aggregate 13,000,000 deadweight tons. In addition, there were building on October 1, this year, a total of 188 additional tankers, aggregating 2,045,940 deadweight tons. Of this total, 15 were American tankers, with aggregate deadweight tonnage of 193,660 and the remaining 173 of foreign registry, and aggregating 1,852,280 deadweight tons.

### Competitive Building

Indications that continued competitive building and world conservation of petroleum production have combined to make for a surplus of bottoms for moving oil are shown by the fact that the present charter rate for clean tankers for the Gulf-United Kingdom run, the basic rate in the tanker charter market, is but 10 shillings 6 pence per ton, as compared with 22 shillings 7 pence per ton eight years ago.

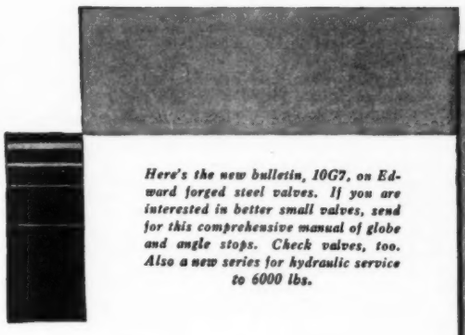
The extent to which the world's oil trade has grown is shown by the following extract from Lloyd's Register of Shipping, covering the quarter ended September 30, last. "Demand for tankers" said this authority, "has reached a point where this type of commercial vessel now represents about 40 per cent of the total world's ship construction, although there was a decline of 75,000 tons in the volume of this tonnage being built at the end of the last quarter, as compared with the preceding one. The returns, which deal with steam and motor tankers of 1,000 gross tons and upwards each, show that a little more than half of the total tonnage of this type is being built in Great Britain and Ireland, as compared with nearly 60 per cent in the previous quarter. This reduction is accompanied by a decline of 93,000 gross tons in the total being constructed in Great Britain and Ireland, as contrasted with the volume at the end of June. Declines are also shown for Germany and the United States, but the other countries combined report a gain of about 40,000 tons. Construction of tankers during the past two quarters has been as follows:

| | Sept. 30, 1930 | June 30, 1930 |
|---|---|---|
| Great Britain and Ireland | 540,318 | 633,577 |
| Germany | 128,545 | 142,845 |
| Sweden | 90,550 | 89,350 |
| United States | 67,500 | 76,200 |
| Other countries | 207,231 | 168,084 |
| World total | 1,034,144 | 1,110,056 |

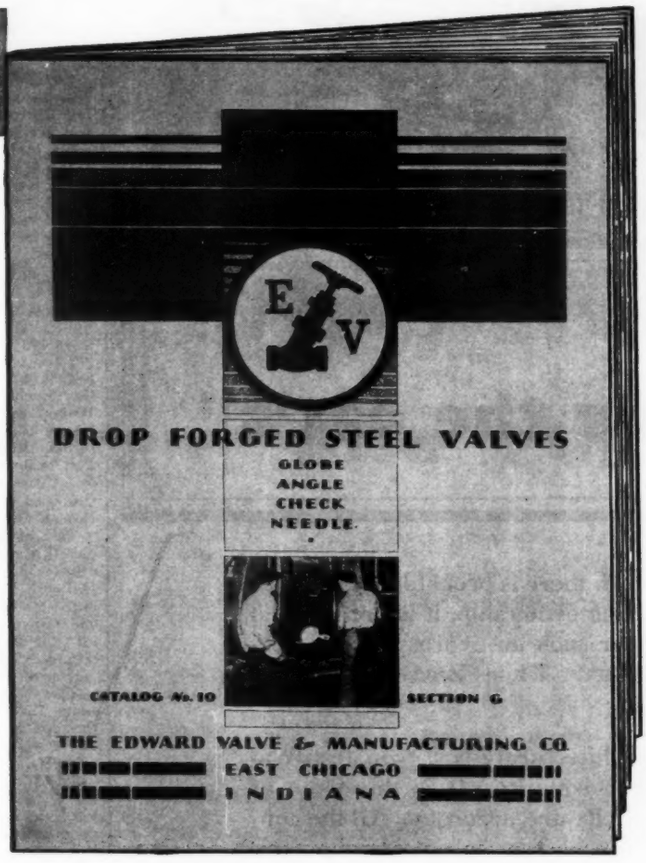
### Scandinavian Activity

Norway, Sweden and Denmark during the past few years have led in the construction of small, fast motor tankers, and considerable construction of this type is now under way in these maritime countries. Speculative building is reported behind a number of the present motor tankers under construction, and with the world oil industry falling in step with the curtailment program initiated in this country, shipping men view with some concern the continued heavy tanker building program. Completion of all of these new fast tankers, it is expected, will make the operation of privately owned tankers less profitable and hasten many tankers now in operation into obsolescence. Independent operations are particularly concerned over the growing tendency on the part of the large world oil companies to build and operate their own fleets. Russia is also reported building a number of fast modern tankers, of medium size, to be used in further expanding her export petroleum trade.

Adoption of new load line regulations at the conference of shipping interests in London may result in considerable readjustment of fleet carrying capacities of petroleum. Until the adoption of these regulations, American tankers, which had not previously been subject to load line regulations, had always loaded considerably deeper than tankers under foreign registry. The effect of the new regulations, which for the first time bring tankers flying the American flag under their scope, will be to increase the average load of tankers under foreign registry, and decrease the average load carried by American tankers. American tanker owners endeavored to secure the enactment of regulations which would bring foreign tanker load lines closer to the levels previously common with American vessels, but on strong opposition from British interests, found themselves unable to carry



*Here's the new bulletin, 10G7, on Edward forged steel valves. If you are interested in better small valves, send for this comprehensive manual of globe and angle stops. Check valves, too. Also a new series for hydraulic service to 6000 lbs.*

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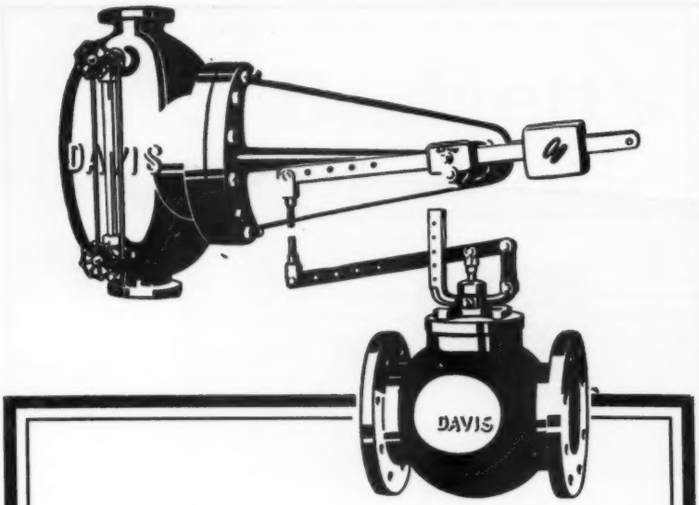


"It's the cat's"

Though there is probably no instance of feline ownership, it is not unusual to hear such an expression concerning Davis Float Boxes, in the oil fields.

Its architectural lines, even, testify to its performance. It is the acme of simplicity and accuracy. All the control mechanism is outside the tank where it is accessible. The operation may be hand tested, and the movable assembly may be balanced by counterweight to handle oil of any gravity.

Used as either inlet or outlet control to maintain a desired fluid level within a tank, the Davis Float Box is extensively used with the best of satisfaction.

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*Sales Engineer*
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DAVIS VALVE SPECIALTIES

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their point. The present load line agreement represents a compromise between the demands of the American owners and the original load line proposals submitted by British oil companies and other tanker operators.

The enormous size of some of the most modern ocean going tankers has made it impossible for them to enter some of the world oil ports and take on full loads. In several instances, notably at the new Venezuelan loading terminal at Carapito, tankers take on half to three-quarters of a capacity load at the terminal and proceed to deep water, additional crude being lightered to deep water and thence transferred into the tanks of the ocean going tanker.

While Standard Oil Co. (New Jersey) is the largest tanker owner in the United States, many other of the largest integrated companies in this country also operate important fleets of ocean going tankers. A number of these companies have followed the lead of the Standard Oil Co. (New Jersey) and segregated their marine operations in a separate subsidiary company.

Among the American companies owning and operating large tanker fleets are Standard Oil Co. of New York, Sun Oil Co., Sinclair Consolidated Oil Corp., Tide Water-Associated Oil Co., Standard Oil Co. of California, Union Oil Co. of California, Richfield Oil Co. of California, Pan American Petroleum & Transport Co., Cities Service Co., Atlantic Refining Co., Gulf Oil Corp., The Texas Company, Beacon Oil Co., and Vacuum Oil Co.

Talk of modern tankers arouses among old oil men handling tanker movement operation memories of the old Calcutta and Hainaut, both tank sailing vessels of the old days when shipments of kerosene to the Orient and movement of "batching oil" for use of the jute trade in India occupied important places in the export petroleum trade of the United States.

The Calcutta, a tank sailing vessel of some 1,500 tons net, flew the British flag and was an outstanding figure in the Far Eastern trade, carrying American oil products from New York to the Far East.

The Hainaut, another sail tanker, flew the Dutch flag and was used largely in the New York-European trade. The Hainaut ordinarily took about a month for her run from New York to the Continent, and an equal time on the return voyage here for additional cargo. At one time, however, she hung up a record of 16 days for the eastward passage, which is fair time for the average steam propelled tanker of today.

## BLENDING ALCOHOL WITH GASOLINE IS COMPULSORY

(Continued from Page 154)

quantity of alcohol, Doctor Kuhlein pointed out, has approximately the same vapor tension as alcohol alone.

Alcohol containing any appreciable quantity of water is not suitable for blending with petroleum fuels, he points out, although alcohol will mix with benzol in all relations up to 4 per cent of water. When alcohol with water content is mixed with petroleum hydrocarbons and the mixture permitted to stand for a time, however, a separation of the constituent parts results, requiring the use of homogenizers and stabilizers which not only maintain an even condition of the mixture but generally increase the ignitibility and rate of reaction in combustion.

In the alcohol-gasoline blends now sold in Germany, only water-free alcohol (absolute alcohol) is used in blending. To insure satisfactory operation of motors using this blend, the proportions of alcohol and gasoline are adjusted to make the blend closely resemble benzol-gasoline fuels, such mixtures containing 20 to 25 per cent of alcohol. The German mixture, it is said, results in an increase of 1 to 2 per cent over straight gasoline in the utilization of the power in the fuel, this being due to the greater thermal efficiency attained owing to the combined oxygen, approximating 30 per cent, which insures a more complete combustion of the fuel than of hydrocarbon fuels depending solely for the combustion oxygen on that in the air mixed with the fuel.

The government of France this year has started to enforce an old order calling for the purchase of alcohol to be blended with imported gasolines. The French order is designed to aid the wine growers of France to dispose of their surplus holdings of wine through conversion of this product into alcohol. The French blend is marketed under the term "Carburant Nationale." Gasoline-alcohol blends had previously been used in France, with more or less successful results, but since the introduction of the compulsory alcohol purchasing order, marketing companies operating in France have been successful in so adjusting their blends as to produce a motor fuel which is reported to be proving eminently satisfactory.

### Olive Oil as Lub

The Spanish government is another which has shown great interest in the development of substitutes for petroleum products, although its activities have centered largely in the lubricating oil division of the market. Olive oil is being used to an increasing extent in Spain as an automobile lubricant, and it is now reported that several Spanish companies are engaging in the manufacture and marketing of these oils. The Spanish government, in co-operation with the operation of its Petroleum Monopoly, is taking steps to build up a home petroleum industry. American interests just last month completed construction of a modern refinery at Teneriffe in the Canary Islands for the Spanish Petroleum Monopoly, and this is now going through the "breaking in" stage preparatory to steady operations. The new plant will run on crude from South America, Russia and Rumania, it is reported.

### Cuba May Use Sugar

The Cuban government, which has passed through a crisis attributable to the debacle in the world sugar market during the past year, is reported seriously considering the conversion of large quantities of surplus sugar into alcohol to be used as a motor fuel in an alcohol-gasoline blend. There are more than 1,500,000 tons of surplus sugar in Cuba which are being segregated for a five-year period to effect market stabilization, and it is believed here that the government will seriously experiment with the conversion of this surplus into alcohol which may be marketed on the island in motor fuel blends.

A number of the smaller European nations, whose agriculturists have been passing through the same unsettling conditions as in France and Germany, are reported to be showing great interest in the working out of the German and French orders, and it is considered probable that compulsory blending of alcohol with petroleum motor fuels will be witnessed in other countries within the coming year.

### Pineapple Waste in Hawaii

Pineapple interests in the Hawaiian Islands for several years past have been experimenting with the use of alcohol made from cannery pineapple waste in conjunction with gasoline, and it is reported that a number of the packing companies operating canneries in the islands have successfully used this alcohol in conjunction with gasoline in their truck fleets.

The alcohol-gasoline blends now being marketed in several countries can be retailed at prices averaging approximately 10 per cent under those charged for other motor fuels, it is reported, and this factor, together with the ready method offered for the disposal of surplus alcohol production, is expected to result in general utilization of this plan in countries having a superabundance of alcohol output and a relatively scant control over sources of refined petroleum products.

## SIAM'S OIL IMPORTS

Imports of refined petroleum products into Siam during 1929 aggregated 578,406 bbls., most of which came from the Dutch East Indies.

Imports for the year included 116,455 bbls. of gasoline, 243,420 bbls. of kerosene, 117,717 bbls. of Diesel oil, and 100,814 bbls. of fuel oil.

## WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 50)

**HARMON COUNTY**

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w ..... Shut down 2,593 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w.. Shut down 625 ft.

**HARPER COUNTY**

Empire's No. 1 Bruce, C NE SW Sec. 12-25-26w ..... Drlg. 7,317 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w ..... 20,000,000 ft. gas 5,350-5,400 ft.; total depth 8,589 ft.; shut down; sprayed 50 bbls. gasoline.

**HASKELL COUNTY**

I. T. I. O.'s No. 1 Blake, SW NW Sec. 3-10-21 ..... Drlg. 2,800 ft.
Mid-Western's No. 1 Poister, C NE SE Sec. 33-10-22 .... Shut down 4,297 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e ..... Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e.. Shut down 2,387 ft.

**HUGHES COUNTY**

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 ..... Shut down 1,645 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 ..... Drlg. 4,480 ft.

**KAY COUNTY**

Wilright Gas Co.'s No. 1 Wildegrube, NE SW Sec. 14-27-1 ..... Location.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1 ..... Location.
Peters & Buckles' No. 1 Hayes, NW NE NW Sec. 24-28-3 ..... Drlg. 525 ft.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 ..... Drlg. 460 ft.
Blackwell's Oil & Gas Co.'s No. 1 Harshman, Sec. 2-26-1w. Rig on ground.
Boucher Oil Co.'s No. 1 Jefferson, NE SW Sec. 32-26-1w.. Fishing 1,175 ft.

**KINGFISHER COUNTY**

Prairie and Slick's No. 1 Wright, C NW SW Sec. 23-15-5w ..... Drlg. 6,850 ft.
Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w ..... Drlg. 7,306 ft.

**KIOWA COUNTY**

Christian's No. 1 Jones, NE SE Sec. 8-7-18w ..... Rig.

**LEFLORE COUNTY**

Red Bank Oil Co.'s No. 1 fee, SE NW Sec. 23-9-24 ..... Wilcox 6,128-6,298 ft.; dry; plugged back to 5,426 ft.; comp. 5,401-5,550 ft.; 6,000,000 ft. gas.

**LATTIMER COUNTY**

P. English's No. 1 Unknown, NW SE Sec. 16-6-19 ..... Rig on ground.
Mid-Western Oil & Gas' No. 1 Bullo, C E half SW Sec. 3-6-19 ..... Drlg. 520 ft.
LeFlore Oil Co.'s No. 1 McBee, NW cor., Sec. 3-7-21 .... Shut down 3,601 ft.
Mid-Western's No. 1 Morris, C NW SE Sec. 12-6-21 ..... Shut down 2,075 ft.; dry.
Limestone Oil & Gas Co.'s No. 1 Murray, NE cor. Sec. 25-5-18 ..... Shut down 2,765 ft.

**LINCOLN COUNTY**

Mote-Wheeler's No. 1 Stafford, NW NE Sec. 32-17-4 .... Cellar.

**LOGAN COUNTY**

Slick and Ramsey's No. 1 Jones, SE NW Sec. 24-17-2w... Drlg. Wilcox 5,735-43 ft.; dry: shut down.
Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w. Sand 4,919-42 ft.; made 870 bbls. 21 hrs. and 485 bbls. 24 hrs. the second 24 hrs.

**McINTOSH COUNTY**

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 5,660 ft.

**McLAIN COUNTY**

Prairie's No. 1 Parkinson, SW NW Sec. 22-7-2w ..... Drlg. 5,640 ft.

**MUSKOGEE COUNTY**

Rebold's No. 1 Miller, SE NE NE Sec. 32-13-19 ..... Rig.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .... Shut down 1,011 ft.

**NOBLE COUNTY**

Barnsdall's No. 1 Miksch, NW SW Sec. 12-21-1 ..... Drlg. 3,080 ft.

**OKFUSKEE COUNTY**

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 ..... Shut down 4,127-57 ft.; water; plugged back to 3,161-85 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 .. Shut down 3,690 ft.

**OKLAHOMA COUNTY**

L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w ..... Shut down 5,515 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor. Sec. 32-14-3w ..... Wilcox 6,697-6,771 ft.; shot with 90 qts. and 140 qts.; made 2,627 bbls. 7 days.
Warr et al's No. 1 Castle, SW NW Sec. 20-11-3w ..... Drlg. 7,160 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-12-4w ..... Shut down 6,700 ft.

**OSAGE COUNTY**

Millard & Stanley's No. 1, SE SW Sec. 4-28-7 ..... Drlg. 350 ft.

**PAWNEE COUNTY**

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5 ..... Spudding.
Sperry et al's No. 1 Mullrap, SE SW Sec. 2-22-5 ..... Drlg. 1,485 ft.
L. E. Wentz' No. 1 G. Lilly, SE SW NE Sec. 26-22-3 .... Drlg. 3,825 ft.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 .... Rig.

**PITTSBURG COUNTY**

C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-5-14 ..... Rig.

**ROGER MILLS COUNTY**

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w ..... Shut down 2,245 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 2,905 ft.

**SEMINOLE COUNTY**

Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 ..... Location.

**WASHITA COUNTY**

Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w. Shut down 130 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 ..... Rig.
Petroleum Holdings, Inc.'s No. 1 Musie, NW cor. Sec. 10-9-20w ..... Shut down 280 ft.

**WOODS COUNTY**

Sinclair Oil & Gas Co.'s No. 1 Showalter, C SW SW Sec. 33-27-16w ..... T. D. 7,280 ft.; plugged back to 6,730 ft.; shot 30 qts. 6,805-25 ft.; no results; plugged back to 4,885 ft.; shot 40 qts. 4,885-4,985 ft.; drlg. out bridge 2,900 ft.; no showing; abandoned.

**WOODWARD COUNTY**

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-22-17w ..... Shut down 1,387 ft.
Prairie Oil & Gas Co. et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w ..... Shut down 7,445 ft.

**OKLAHOMA PANHANDLE**

**TEXAS COUNTY**

Argus Prod. Co.'s No. 1 Fischer, C NW Sec. 29-6-14 ..... Location abandoned.
Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-18 ..... Shut down 4,425 ft.
Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e ..... Spudded; shut down.

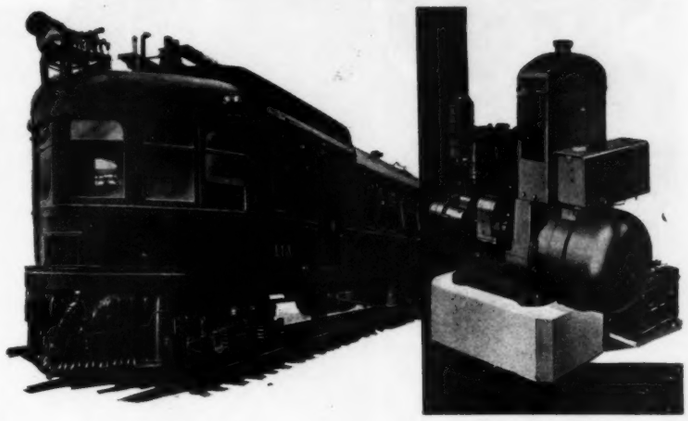
**SOUTHERN OKLAHOMA**

**ATOKA COUNTY**

Bryant et al's No. 1 Southern Trust, C SW SW Sec. 3-1s-14 ..... Drlg. 698 ft.
Stewart-Howland's No. 1 Howard, NW SE NW Sec. 6-4s-11 ..... Shut down 100 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 ..... Shut down 400 ft.

**BRYAN COUNTY**

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10.. Shut down 425 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... Shut down 525 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e... Shut down 485 ft.
Marshall's No. 2 Fee, C SW NW Sec. 26-5s-7 ..... Shut down; 6-in. csg. 265 ft.

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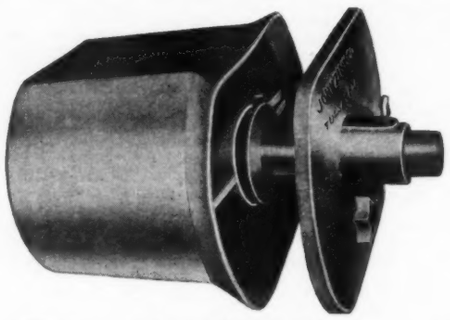

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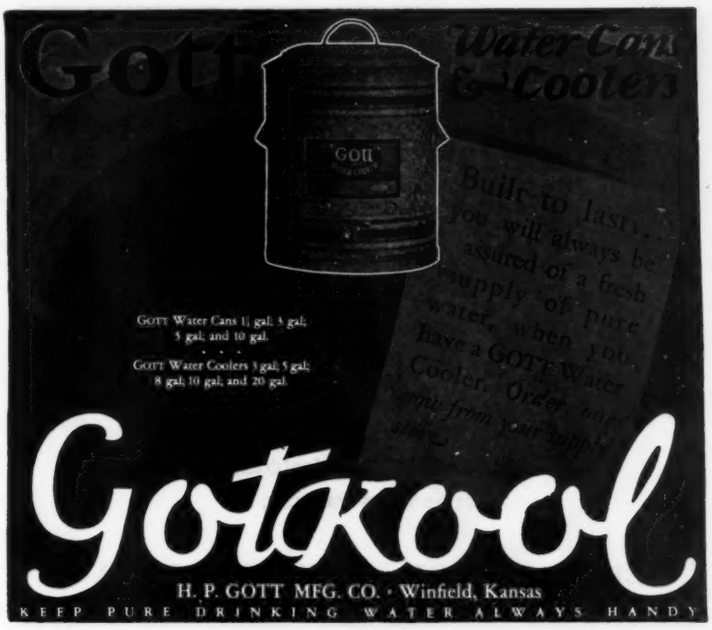
**CARTER COUNTY**
Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Cleaning out 2,590 ft.
**COTTON COUNTY**
Gilbert-Lowery's No. 1 Harneg, C SE SE Sec. 4-2s-11w.. Rig.
**JEFFERSON COUNTY**
J. H. Brown et al's No. 1 Norlett, SW NW NE Sec. 35-7s-5w ..... Drlg. 350 ft.
Mutual Oil Co.'s No. 1 Sharp, SE NW Sec. 3-5s-8w .... Drlg. 110 ft.
**LOVE COUNTY**
Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w.. Shut down 3,130 ft.
**MARSHALL COUNTY**
D. H. Curry's No. 1 Ward, NE SE SW Sec. 15-5s-6 ..... Drlg. 1,275 ft.
McCrory et al's No. 1 Adams, NE SW SE Sec. 31-7s-6 ... Drlg. 455 ft.
Akers et al's No. 1 Spicer, SW SE SE Sec. 33-5s-7e ..... Shut down 370 ft.
**McCURTAIN COUNTY**
Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 2,287 ft.
**STEPHENS COUNTY**
Obermyer et al's No. 1 Skelton, NE SW SW Sec. 32-1S-7W ..... Shut down 1,375 ft.
R. Southard's No. 1 McKinney, NE cor. Sec. 25-1-8n .... Shut down 1,060 ft.

## WILDCAT OPERATIONS IN KANSAS

(Continued from Page 52)

**ELLSWORTH COUNTY**
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w ..... Rig.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w... Drlg. 495 ft.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w ..... Shut down 330 ft.
Aladdin and Carter Oil Co.'s No. 1 Barecky, C NW Sec. 3-16-10w ..... Shut down 2,718 ft.
**FORD COUNTY**
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w ..... Shut down 4,300 ft.
**GOVE COUNTY**
Johnson and Atlantic's No. 1 Wright, SE NE Sec. 11-12-27w ..... Cleaning out 3,510 ft.
Valerius & Baucher Oil Co.'s No. 1 Todd, NW cor. Sec. 24-13-27w ..... Drlg. 4,467 ft.
**GRAHAM COUNTY**
Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w. Drlg. 2,972 ft.
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w. Shut down 4,370 ft.
**GRANT COUNTY**
McKenna et al's No. 1 Sullivan, NE cor. Sec. 12-29-38w.. Drlg. 2,645 ft.
**GREENWOOD COUNTY**
Staats et al's No. 1 Swan, NE NW Sec. 3-25-12 ..... Abandoned 50 ft.
F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12.. Lime 1,985-2,020 ft.; water; abnd.
**HARPER COUNTY**
Atkinson et al's No. 1 Misak, SE cor. Sec. 25-34-6w ..... Drlg. 4,948 ft.
Beeler et al's No. 1 Bear, C NE Sec. 21-36-6w ..... Shut down 1,830 ft.
**KINGMAN COUNTY**
Skelly Oil's No. 1 Miles, NE cor. Sec. 30-27-10w ..... 1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft., 6,000,000 ft. gas; at 2,133-42 ft., 3,000,000 ft. gas; shut down 2,459 ft.
**KIOWA COUNTY**
Phillips-Prairie's No. 1 Bean, NE SE Sec. 10-30-17w ... Fishing 5,117 ft.
McKenna et al's No. 1 Ralston, C NE Sec. 14-28-20w .... Rig.
**LYONS COUNTY**
Griffith et al's No. 1 King, NW cor. Sec. 8-19-10 ..... Shut down 910 ft.
**MARION COUNTY**
Aladdin Pet.'s No. 1 Koch, NW NE Sec. 36-17-3 ..... Rig.
Midwell's No. 1 La Master, NW cor. Sec. 31-22-4 ..... Shut down 625 ft.
Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5 .... Abandoned.
**MARSHALL COUNTY**
Swicker & Sincox's No. 1 Remple, C N half NW Sec. 24-4-9 ..... Drlg. 1,295 ft.
Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 ..... Shut down 50 ft.
**McPHERSON COUNTY**
United Pet. Co.'s No. 1 Kalgi, NE cor. Sec. 20-19-1w .... Spudding.
Henderson & Holden's No. 1 Sommerfield, NE SW Sec. 23-19-1w ..... Fishing 2,100 ft.
Aladdin Pet.'s No. 1 Rudolph, NW NE Sec. 36-18-3w .... Shut down 250 ft.
Slick et al's No. 1 Randell, C SW SW Sec. 35-17-5w .... Drlg. 1,680 ft
Aladdin Pet. Co.'s No. 1 Larson, C NW Sec. 22-18-4w .... Rig.
**MORTON COUNTY**
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-24-43w ..... Fishing 5-in. csg. 3,460 ft.
**MORRIS COUNTY**
Urschell et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7.. Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9 .... Rig.
Urschell et al's No. 1 Scott, NE NW Sec. 6-16-6 ..... Shut down 2,420 ft.
**NESS COUNTY**
Gypsy Oil Co.'s No. 1 Coleman, C SW NE Sec. 25-17-25w.. Rig on ground.
**NORTON COUNTY**
Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.
**OSAGE COUNTY**
Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Drlg. 900 ft.
**PAWNEE COUNTY**
Phillips' No. 1 Cuthbertson, NE cor. Sec. 27-20-8w ..... Drlg. 3,650 ft.
**PRATT COUNTY**
Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w ..... Fishing 4,353-95 ft.; water.
**RAWLINS COUNTY**
Danciger Oil & Ref.'s No. 1 Unknown, SW cor. Sec. 3-2-35w ..... Fishing 2,005 ft.
**RENO COUNTY**
Braden et al's No. 1 Thersen, SE NE Sec. 6-22-4w ..... Drlg. 3,863 ft.
Shell Pet. Corp.'s No. 1 Popp, NW cor. Sec. 11-25-5w .... Wilcox 3,907-10 ft.; hole full of water; drlg. 3,930 ft.
**RICE COUNTY**
Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w.. Rig on ground.
Gypsy Oil Co.'s No. 1 Koenig, SW NE Sec. 10-20-10w .... Rig.
Muth Bros. No. 1 Beyers, NE NW Sec. 21-19-9w ..... Drlg. 2,000-02 ft.; 3,000,000 ft. gas.
Jasper & Beschka's No. 1 Cupp, SW NE Sec. 22-18-9w... Drlg. 2,010-20 ft.; 7,500,000 ft. gas, drlg. 3,450 ft.
United Pet. Co.'s No. 1 Willman, NE cor. Sec. 29-21-9w.. Drlg. 3,437 ft.
**ROOKS COUNTY**
Streeter-Stearns' No. 1 Conger, SE NW NE Sec. 16-10-16w ..... Abandoned 3,416-83 ft.; water.
**RUSH COUNTY**
Syndicate Oil Co.'s No. 1 Lannen, C SW Sec. 11-18-16w.. Drlg. 1,042 ft.
**RUSSELL COUNTY**
Empire Oil & Ref. Co.'s No. 1 Sherwood, SE NW NW Sec. 21-14-13w ..... Fishing 3,278 ft.
Austin Drlg. Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w ..... Shut down 2,740 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w .... Shut down 2,155 ft.
**SEDGWICK COUNTY**
Streeter & Stearn's No. 1 Tobin, SW SE NE Sec. 6-22-2... Shut down 1,330 ft.
Buck et al's No. 1 McNananan, NE NW NW Sec. 2-29-1.. Rig.
**SALINE COUNTY**
Sampson et al's No. 1 Sudenderf, NE SE Sec. 30-14-2w.. Drlg. 180 ft.
Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w ..... Shut down 2,500 ft.
**STEVENS COUNTY**
Braden et al's No. 1 Theisen, SE NE Sec. 6-22-4w ..... Rig on ground.
McNabb and Mid-Kansas' No. 1 Rhinehart, C NE Sec. 23-32-39w ..... Drlg. 1,600 ft.
**SUMNER COUNTY**
Disney et al's No. 1 Fay, C E half SE Sec. 14-34-1w .... Rig abandoned.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig abandoned.
**WASHINGTON COUNTY**
Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3 .... Drlg. 1,720 ft.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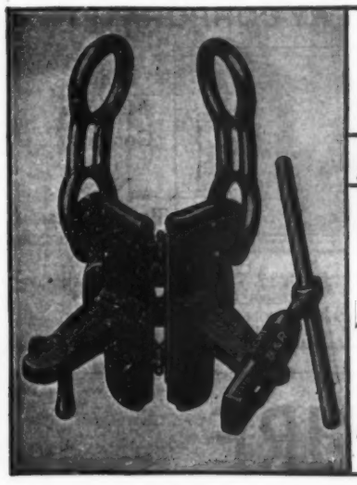

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## LIFE OF OIL TANKERS IS BEING SHORTENED

Changing properties of crude oil and refined products shipped in bulk, coupled with the intensive use of tankers, has materially shortened the average life of ocean-going tankers used in the world's oil trade, according to Doctor Schutt, prominent German authority.

Writing recently in the Hamburg Wirtschaftsdienst, Doctor Schutt said: "The life of a tanker before the war was the same as that of other cargo vessels, but is now put at 16 to 18 years, and in certain conditions as low as 12 years. The accelerated deterioration is attributed to the continuous increase in the shipments of motor spirit, the intensive use of the vessels and the consequent greater strain on hull and machinery, and corrosion in the tanks caused by chemical action of the oil.

"The parts particularly affected are the expansion chambers, the deck and cross beams and the rivets. Oils containing sulphur, acid or water are especially harmful, the chief offenders being petrol, benzole and other light oils, particularly when air and moisture have come into contact with them.

"The material of which the ship is constructed is another factor in the extent of the corrosion. Tankers built of iron withstood the destructive chemical reactions better than steel vessels. English experts now favor the use only of special rust-proof steel, while some American builders are using steel containing 0.3 per cent of copper.

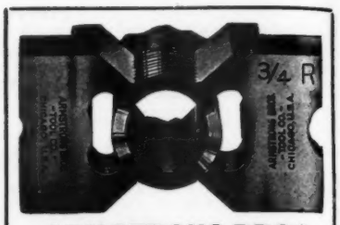
"The financial aspect of the effects of corrosion may be illustrated by the following examples: £100,000 had to be expended on a Norwegian vessel of 16,870 tons after 12 years, a sum equivalent to two-thirds of the original cost. Another Norwegian prospective purchaser of an 11-year-old motor-driven tanker withdrew from the deal when it proved that entirely new engines would have to be fitted."

## OIL-TINTING PROCESS FOR LUBRICATING OILS

Royal Dutch chemists have recently developed a new coloring agent for lubricating oils, according to advices from The Hague. The search for the coloring process was inspired by the fact that high-grade Pennsylvania lub oils show green by reflected light and red by transmitted light, leading consumers to look for these colors when purchasing lub oils.

Reporting the Dutch discovery, "Petroleum Times" of London in a recent issue said: "It is not yet definitely known which constituents of the oil actually cause the green fluorescence. Brooks and Bacon attributed the phenomenon to aromatic hydrocarbons of medium composition ($C_{24}H_{12}$), working on the assumption that chrysene ($C_{18}H_{12}$), fluorene ($C_{13}H_{10}$), and pyrene ($C_{16}T_{10}$) are present; none of these, however, has yet been proved in petroleum distillates. They are colorless with a blue to violet fluorescence, and their molecular gravity is much lower than the values obtained by Brooks and Bacon for the fluorescent bodies isolated by them. These hydrocarbons may be responsible for the bluish fluorescence of some oils, but not for the typical Pennsylvanian sheen and color. A more likely cause is the presence of certain hydrocarbons with green fluorescence, such as naphth-anthracene ($C_{18}H_{12}$), crackene ($C_{24}H_{18}$), etc., which have been found in coal tar pitch and petroleum residues.

"It is difficult and costly to isolate the fluorescent compounds in the pure state; it is preferable to dissolve the pitch or residue in oil, or to extract them with the oil, and to add an appropriate quantity of the coloring 'dope' to the lubricating oil. These processes are described in the American patent specifications Nos. 1,708,563, 1,708,592 and 1,708,602, acquired by the Pan-American Petroleum Co. The disadvantage of this method is that other constituents of the pitch or residue may be carried into the oil along with the fluorescent matter, and adversely affect the chemical and physical prop-

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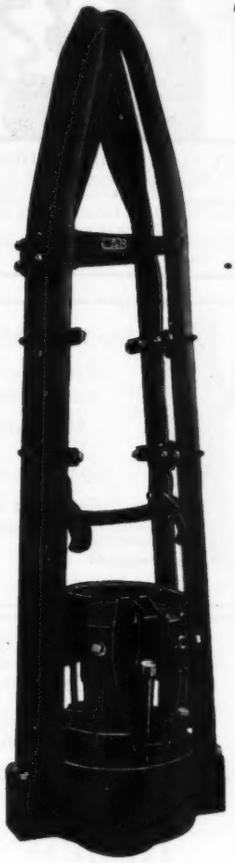

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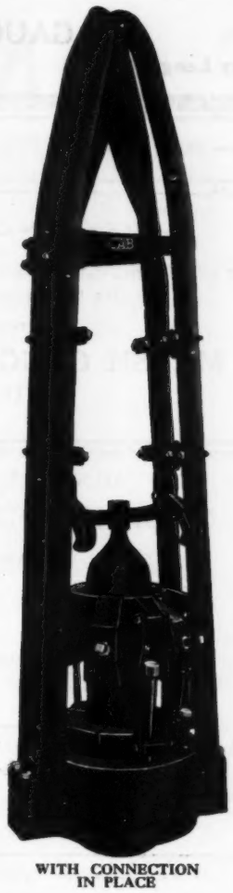

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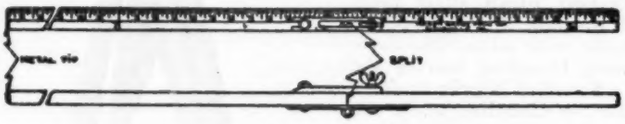

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erties of the product. A purer coloring agent was clearly wanted, if results were to be satisfactory.

"A. Homer had obtained a red colored hydrocarbon ($C_{30}H_{20}$) in small quantity as a by-product of the reaction between naphthaline and $AlCl_3$, which he termed tetra-methyl-erythene and regarded as a naphth-anthracene derivative; subsequent spectroscopical examination by Humer and Purvis indicated that it was tetra-methyl-picene.

"After numerous experiments in the Royal Dutch-Shell laboratories, this product of the action of $AlCl_3$ on naphthalene—at high temperature, for a certain period, and in proper proportion—is now obtained in technically satisfactory quantities, and is found to be admirably adapted for producing the desired green fluorescence. It has also been more closely studied and proves to be a hydrocarbon compound containing a di-methyl-crackene or naphth-anthracene derivative, but no picene derivative. A small proportion brings the appearance of lubricating oil up to the best Pennsylvania standard without in any way affecting the other properties of the oil.

"Another group of fluorescent compounds, the acridine and azine derivatives, were suggested as coloring agents, but acridine and acridone have a blue to violet fluorescence and are therefore of as little use as chrysene, fluorene, etc. Di-methyl-naph-curhodine, discovered by Witt and described by Plotnikov as an instructive example of changing fluorescence, is a substance soluble in lubricating oil with a beautiful green fluorescence. The typical Pennsylvania fluorescence is not quite attained, but the compound is undoubtedly useful for shading."

## KENTUCKY FIELDS

(Continued from Page 72)

has shown more or less gas for a number of years.

**McLean County**

The Calhoun Field, in McLean County, reports two completions, both reported dry. They are Englow and others' No. 1 P. A. Hoover farm, near the Rough River locks, which failed to find a commercial producer at 1,560 feet, the other being James C. Ellis' No. 1 Mart Hill farm, near Glenville. There are reports that a dry hole was drilled near Gilstrap in Butler County.

The Cumberland Oil Co., Inc., drilled a well on the Willie Brake farm of 500 acres on Bear Creek, in eastern Cumberland County, three-fourths of a mile east of the Lela Keen well. The well stands full to the top, not much gas, however, and will flow when agitated from 8 to 12 bbls. at a time, but by the time it is well through it is full to the top again. They have tubed it, and capped it and are drilling their No. 2 on that particular tract. It looks like that part of the structure might contain area enough to have on it at least 12 wells, the balance of the 500 acres they do not believe is of any value. They have from time to time drilled on different parts of this acreage without success, finally by going ahead found this spot. B. H. Allen of Summerville, Mass., is at the head of this concern. The log of this well is as follows: 10 feet of dirt to top of black shale; 27 feet 6 inches to bottom of black shale; 309 feet from bottom of black shale to top of first Sunnybrook sand; 10 feet 6 inches of sand drilled through, not a drop of water but plenty of oil; total depth 357 feet.

The Lena Keen well in Cumberland County is estimated around 15 bbls., and a good well for shallow territory.

## GERMANY USES MORE HEAVY OIL

Starting of operations of the Ebano asphalt works in Germany was reflected by an increase of approximately 350 per cent in crude oil imports into that country during the first six months of 1930. The Ebano works have capacity for 1,750,000 bbls. of crude per year, and are reported working principally on heavy crude with maximum asphalt contest. Most of this oil is coming from the Panuco Field in Mexico and from Venezuela.

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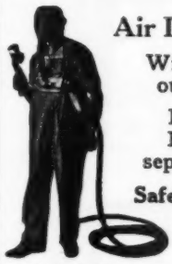

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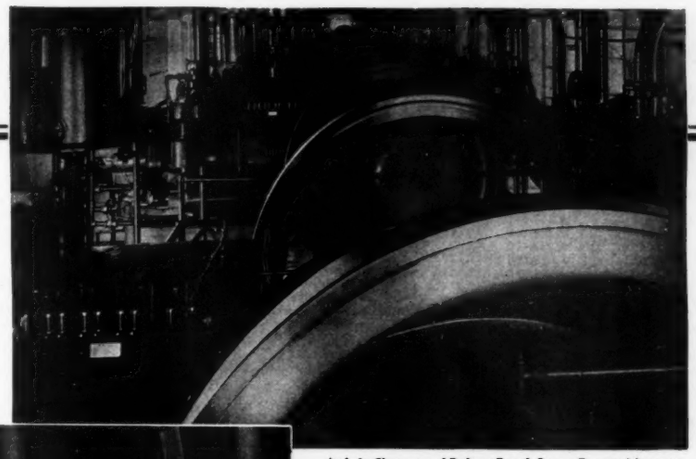

At left: Close-up of Robert Bosch Super-Energy Magneto installation in Gypsy Oil Co. plant shown above.

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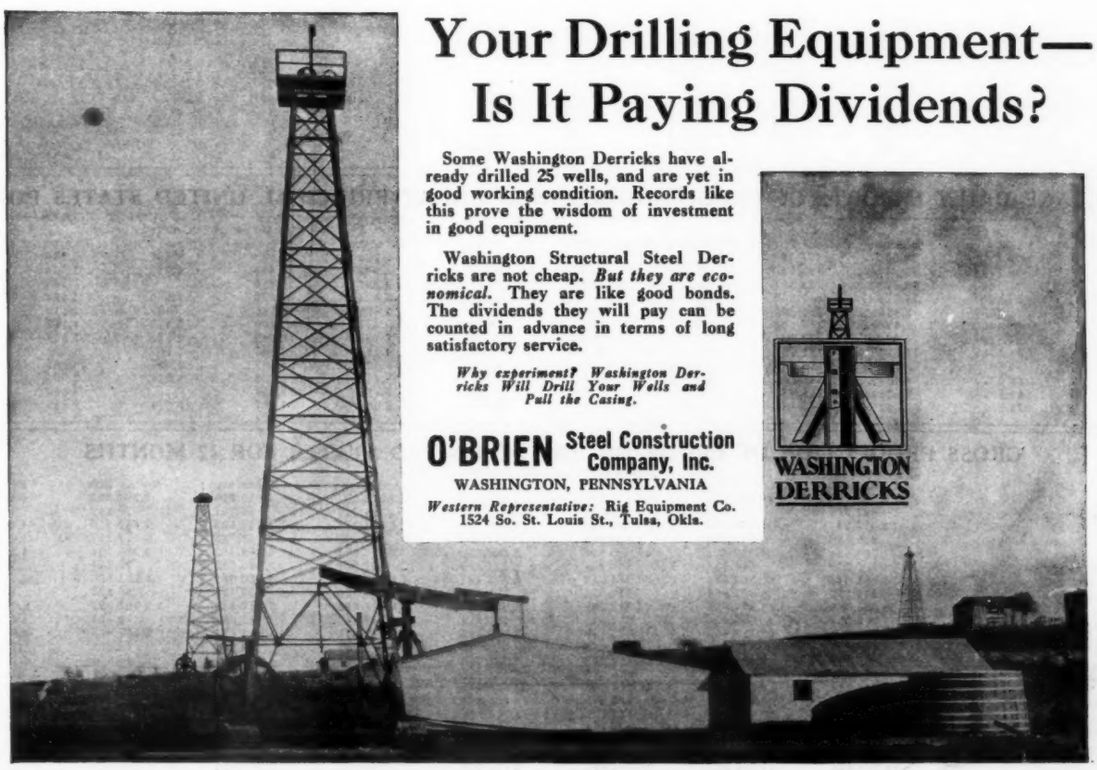

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WASHINGTON DERRICKS

# Oklahoma-Kansas and Eastern Pipe Line Report

## OKLAHOMA-KANSAS

### Pipe Line Runs for the Month of September 1930

| | Month bbls. | Daily average bbls. |
|---|---|---|
| Prairie P. L. Co.* | 3,096,000 | 103,200 |
| Gulf P. L. Co. | 1,253,047 | 41,768 |
| Texas P. L. Co. | 597,863 | 19,929 |
| Magnolia P. L. Co. | 1,385,171 | 46,172 |
| Empire P. L. Co. | 1,821,332 | 60,711 |
| Cosden P. L. Co. | 832,711 | 27,757 |
| Stanolind P. L. Co.* | 2,835,000 | 94,500 |
| Oklahoma P. L. Co. | 2,206,399 | 73,547 |
| Other lines* | 5,880,000 | 196,000 |
| Total September | 19,907,520 | 663,581 |
| Total August | 20,759,207 | 669,651 |
| Difference | 851,687 | 6,067 |

**Shipments**

| | | |
|---|---|---|
| Prairie P. L. Co.† | 4,246,592 | 141,553 |
| Gulf P. L. Co. | 1,208,894 | 40,296 |
| Texas P. L. Co. | 1,292,472 | 43,032 |
| Magnolia P. L. Co. | 1,535,669 | 51,189 |
| Empire P. L. Co. | 2,164,408 | 72,117 |
| Cosden P. L. Co. | 989,219 | 32,974 |
| Stanolind P. L. Co.† | 3,264,928 | 108,831 |
| Oklahoma P. L. Co. | 2,515,372 | 83,846 |
| Other lines* | 5,010,000 | 167,000 |
| Total September | 22,227,564 | 740,918 |
| Total August | 23,829,712 | 768,701 |
| Difference | 1,602,148 | 27,783 |

**Stocks**

| | |
|---|---|
| Prairie O. & G. Co.* | 37,050,000 |
| Gulf P. L.-Gypsy Oil Co. | 8,108,863 |
| The Texas Company | 4,130,059 |
| Magnolia Petroleum Co. | 5,821,224 |
| Empire P. L. Co. | 5,396,159 |
| Mid-Continent Petroleum Corp. | 3,705,319 |
| Stanolind Crude Oil Pur. Co.* | 20,300,000 |
| Oklahoma P. L. Co.* | 2,840,663 |
| Carter Oil Co. | 9,719,214 |
| Other lines* | 23,822,500 |
| Total September | 120,894,006 |
| Total August | 122,274,011 |
| Difference | 1,380,005 |

*Estimated. †Prairie and Sinclair shipments include Texas crude oil.

## EASTERN PIPE LINE REPORT FOR MONTH OF OCTOBER

### Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for September and October:

| | Sept., 1930 | Oct., 1930 |
|---|---|---|
| Nat. Transit | 126,408.01 | 135,934.22 |
| S. W. Pa. P. L. | 76,584.80 | 82,961.29 |
| Eureka P. L. | 286,627.14 | 329,128.04 |
| Buckeye P. L. (Macksburg) | 335,374.02 | 354,552.31 |
| Buckeye P. L. (Cleveland) | 11,061.63 | 12,508.84 |
| Buckeye P. L. (Lima, etc.) | 93,802.50 | 94,154.99 |
| Indiana P. L. | 5,054.52 | 4,483.25 |
| Cumberland P. L. | 179,527.92 | 172,782.31 |
| N. Y. Transit | 39,582.19 | 35,614.60 |
| Tide Water P. L. | 25,676.10 | 27,863.60 |
| Pure Oil | 191,912.84 | 189,448.04 |
| Stoll Oil Ref. | 3,317.59 | 19,496.16 |
| Bradford Tran. | 322,922.66 | 344,649.24 |
| Total | 1,697,851.92 | 1,803,576.80 |
| Daily average | 56,595.07 | 58,179.89 |

Note—Indian Refining Co. had other receipts of 307,070.32 bbls.

### Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

| | Sept., 1930 | Oct., 1930 |
|---|---|---|
| Nat. Transit | 484,508.49 | 479,245.86 |
| S. W. Pa. P. L. | 256,281.87 | 187,406.27 |
| Eureka P. L. | 244,918.35 | 247,221.25 |
| Buckeye P. L. (Macksburg) | 216,745.14 | 217,217.64 |
| Buckeye P. L. (Cleveland) | 1,712.02 | 2,200.10 |
| Buckeye P. L. (Lima, etc.) | 1,075,693.59 | 1,029,180.06 |
| Indiana P. L. | 1,128,187.89 | 548,201.97 |
| Cumberland P. L. | 136,895.24 | 126,573.84 |
| Southern P. L. | 66,892.64 | 69,576.30 |
| N. Y. Transit | 154,726.36 | 169,187.25 |
| Northern P. L. | 124,793.90 | 80,085.31 |
| Tide Water P. L. | 585,647.20 | 574,109.31 |
| Pure Oil | 183,063.50 | 274,485.43 |
| Indian Ref. | 373,510.38 | 334,226.70 |
| Bradford Tran. | 425,829.96 | 263,300.96 |
| Tuscarora Oil | 360,569.02 | 285,721.78 |
| Total | 5,819,974.55 | 4,887,939.93 |
| Daily average | 193,999.15 | 157,675.48 |

### Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of September and October:

| | Sept., 1930 | Oct., 1930 |
|---|---|---|
| Nat. Transit | 765,612.70 | 830,161.58 |
| S. W. Pa. P. L. | 542,827.03 | 543,474.82 |
| Eureka P. L. | 1,516,135.69 | 1,483,216.69 |
| Buckeye P. L. (Macksburg) | 665,235.49 | 656,581.88 |
| Buckeye P. L. (Cleveland) | 66,500.27 | 65,770.92 |
| Buckeye P. L. (Lima, etc.) | 5,065,078.07 | 4,992,794.24 |
| Indiana P. L. | 759,036.08 | 795,428.98 |
| Cumberland P. L. | 548,890.67 | 521,527.42 |
| Southern P. L. | 294,744.69 | 265,170.20 |
| N. Y. Transit | 139,813.32 | 178,747.41 |
| Northern P. L. | 480,715.71 | 459,246.38 |
| Tide Water P. L. | 957,099.18 | 811,218.64 |
| Pure Oil | 520,059.95 | 433,436.65 |
| Indian Ref. | 88,060.52 | 61,037.68 |
| Tuscarora | 276,805.35 | 104,667.41 |
| Brad Trans. | 125,354.27 | 235,074.97 |
| Total | 12,812,018.99 | 12,437,565.87 |
| Decrease | 235,032.85 | 374,463.12 |

### Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of September and October showing gross stocks of the above fields:

| | Sept., 1930 | Oct., 1930 |
|---|---|---|
| Pennsylvania | 3,921,022.36 | 3,961,667.74 |
| Lima | 328,284.49 | 345,272.27 |
| Kentucky | 596,275.33 | 594,637.03 |
| Mid-Continent | 6,946,872.38 | 6,611,577.52 |
| Illinois | 10,632.05 | 2,102.03 |
| Michigan | 508,932.40 | 421,299.28 |
| Total | 12,812,018.99 | 12,437,555.87 |

### Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

| | 1927 | 1928 | 1929 | 1930 |
|---|---|---|---|---|
| January | 56,209 | 52,904 | 51,749 | 75,907 |
| February | 61,298 | 57,002 | 51,833 | 79,256 |
| March | 63,247 | 57,485 | 54,252 | 76,688 |
| April | 60,927 | 56,812 | 53,444 | 84,536 |
| May | 60,284 | 62,067 | 59,902 | 80,548 |
| June | 62,757 | 58,230 | 52,833 | 75,430 |
| July | 58,674 | 57,144 | 56,087 | 68,921 |
| August | 60,870 | 57,745 | 56,087 | 54,291 |
| September | 60,285 | 53,487 | 67,316 | 56,595 |
| October | 147,080 | 58,100 | 76,093 | 58,179 |
| November | 57,275 | 53,865 | 74,831 | ..... |
| December | 53,089 | 52,925 | 74,561 | ..... |

### Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

| | 1927 | 1928 | 1929 | 1930 |
|---|---|---|---|---|
| January | 141,227 | 146,465 | 165,721 | 217,623 |
| February | 138,534 | 167,368 | 159,387 | 224,355 |
| March | 133,777 | 158,883 | 161,474 | 228,846 |
| April | 140,227 | 172,935 | 169,737 | 241,845 |
| May | 144,594 | 180,559 | 184,281 | 248,383 |
| June | 149,772 | 188,024 | 185,404 | 234,401 |
| July | 151,850 | 189,470 | 194,763 | 207,094 |
| August | 188,653 | 192,852 | 184,946 | 205,506 |
| September | 144,213 | 194,138 | 201,214 | 192,999 |
| October | 147,036 | 176,000 | 191,367 | 157,675 |
| November | 150,975 | 176,898 | 202,742 | ..... |
| December | 144,504 | 173,572 | 186,257 | ..... |

### Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

| | 1928 | 1929 | 1930 |
|---|---|---|---|
| January | 12,276,710 | 7,596,564 | 13,220,045 |
| February | 12,180,419 | 8,738,835 | 12,991,561 |
| March | 12,339,725 | 9,002,058 | 13,247,217 |
| April | 11,740,125 | 8,978,172 | 13,233,961 |
| May | 11,602,468 | 8,903,560 | 13,052,953 |
| June | 11,287,678 | 8,921,275 | 13,396,855 |
| July | 10,819,331 | 9,211,595 | 13,268,562 |
| August | 10,236,743 | 9,440,643 | 13,047,051 |
| September | 9,660,910 | 9,443,067 | 12,812,018 |
| October | 9,229,709 | 9,441,101 | 12,437,555 |
| November | 8,866,553 | 9,868,538 | ..... |
| December | 7,539,555 | 11,253,953 | ..... |

### The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

| | |
|---|---|
| Gross stocks, October 31 | 1,991,058.92 |
| Runs from wells | 450,578.52 |
| Other receipts | 210,504.03 |
| Regular deliveries | 292,826.13 |
| Other deliveries | 296,877.49 |

The amount of Illinois oil run by the Tidewater Pipe Co. in October was 27,863.60 bbls. Deliveries were 27,863.60 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

| 1930— | Runs | Deliveries |
|---|---|---|
| October | 478,442.12 | 320,688.72 |
| 1929— | | |
| February | 517,320.17 | 502,387.70 |
| March | 728,319.67 | 586,049.60 |
| April | 515,374.27 | 654,297.96 |
| May | 608,981.60 | 673,812.33 |
| June | 568,454.70 | 818,845.97 |
| July | 611,106.79 | 828,159.44 |
| August | 625,351.99 | 746,425.66 |
| September | 582,457.66 | 669,947.72 |
| October | 622,302.83 | 558,558.61 |
| November | 565,108.75 | 427,064.42 |
| December | 548,924.41 | 489,368.31 |
| 1930— | | |
| January | 543,387.95 | 498,293.91 |
| February | 548,416.32 | 414,536.59 |
| March | 631,944.49 | 469,119.53 |
| April | 530,074.22 | 509,304.68 |
| May | 605,147.37 | 504,069.94 |
| June | 573,662.57 | 468,658.31 |
| July | 604,529.54 | 588,454.47 |
| August | 594,642.12 | 375,742.43 |
| September | 457,001.11 | 371,691.63 |

Tide Water Pipe Co., Ltd., also delivered in October, 321,108.94 bbls. Oklahoma oil.

## AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

| Average barrels per day in 1929-30— | ATLANTIC PORTS: Baltimore | Boston | New York | Philadelphia | Others | Total | GULF COAST PORTS: Galveston | New Orleans Baton Rouge | Port Arthur Sabine Pass | Tampa | Total | Total all ports |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| November | 18,900 | 3,167 | 41,667 | 14,699 | 3,767 | 82,200 | ..... | ..... | ..... | ..... | 2,400 | 84,600 |
| December | 12,968 | ..... | 46,129 | 13,613 | 7,225 | 79,935 | ..... | ..... | ..... | ..... | 2,335 | 82,290 |
| January | 18,484 | 1,936 | 34,257 | 22,323 | 9,516 | 86,516 | ..... | ..... | ..... | ..... | 2,258 | 88,774 |
| February | 7,678 | ..... | 24,714 | 14,321 | 5,000 | 51,714 | ..... | ..... | ..... | ..... | 2,607 | 54,321 |
| March | 10,548 | 3,065 | 28,871 | 8,774 | 22,484 | 73,742 | ..... | ..... | ..... | ..... | 805 | 74,548 |
| April | 7,767 | ..... | 14,369 | 11,600 | 7,433 | 41,167 | ..... | ..... | ..... | ..... | 7,600 | 48,767 |
| May | 5,194 | 8,451 | 28,161 | 9,484 | 2,774 | 54,064 | ..... | ..... | ..... | ..... | 774 | 54,838 |
| June | 8,300 | ..... | 33,933 | 20,767 | 2,333 | 65,333 | ..... | ..... | ..... | ..... | 2,400 | 67,733 |
| July | 17,355 | 7,774 | 43,419 | 23,839 | 6,452 | 98,839 | ..... | ..... | ..... | ..... | 4,645 | 103,484 |
| August | 7,418 | 3,742 | 38,968 | 21,226 | 5,258 | 81,613 | ..... | ..... | ..... | ..... | 97 | 81,710 |
| September | 6,200 | 6,400 | 25,600 | 13,400 | 9,567 | 61,267 | ..... | ..... | ..... | ..... | 2,433 | 63,700 |
| October | 2,516 | 3,065 | 27,258 | 16,419 | 4,903 | 54,161 | ..... | ..... | ..... | ..... | 5,355 | 59,516 |

## AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

| Average barrels per day in 1929-30— | ATLANTIC PORTS: Baltimore | Boston | New York | Philadelphia | Others | Total | GULF COAST PORTS: Galveston | New Orleans Baton Rouge | Port Arthur Sabine Pass | Tampa | Total | Total all ports |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| November | 23,633 | 18,900 | 125,200 | 41,100 | 28,200 | 237,033 | 2,233 | 12,533 | 6,667 | 2,800 | 24,233 | 260,266 |
| December | 29,774 | 15,387 | 133,742 | 31,000 | 23,775 | 233,678 | 5,548 | 16,484 | 6,613 | 1,774 | 30,419 | 264,097 |
| January | 21,161 | 10,678 | 134,581 | 38,677 | 43,806 | 248,903 | 4,322 | 6,453 | ..... | 548 | 11,323 | 260,226 |
| February | 24,500 | 14,714 | 147,357 | 36,036 | 39,786 | 262,933 | 2,821 | 11,072 | 3,500 | 1,964 | 19,357 | 281,750 |
| March | 28,355 | 3,839 | 151,806 | 36,645 | 34,903 | 255,548 | 4,323 | 11,645 | 839 | 2,419 | 19,226 | 274,774 |
| April | 31,400 | 8,933 | 123,500 | 40,433 | 19,434 | 223,700 | ..... | 7,400 | 2,433 | 4,167 | 14,000 | 237,700 |
| May | 24,129 | 9,322 | 174,194 | 39,291 | 28,226 | 275,161 | 5,194 | 11,548 | 2,935 | 1,323 | 24,000 | 299,161 |
| June | 51,533 | 15,667 | 121,067 | 45,033 | 25,033 | 258,333 | 4,413 | 17,367 | 2,167 | 1,333 | 25,300 | 283,633 |
| July | 42,097 | 9,548 | 154,968 | 37,935 | 36,032 | 280,580 | 5,678 | 9,161 | 2,097 | 2,387 | 19,323 | 299,903 |
| August | 39,033 | 4,484 | 145,613 | 33,355 | 25,097 | 247,581 | 8,419 | 9,323 | 8,548 | 3,000 | 29,290 | 276,871 |
| September | 38,867 | 8,533 | 150,933 | 34,500 | 25,567 | 258,400 | 6,433 | 12,234 | ..... | 3,800 | 22,467 | 280,867 |
| October | 19,839 | 11,742 | 146,194 | 35,256 | 26,967 | 240,097 | 6,065 | 7,067 | 2,774 | 2,545 | 18,451 | 258,548 |

## GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

| 1929-30— | | California | Oklahoma | Texas | Kansas | Arkansas | Louisiana | Rocky Mts. | Eastern | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| October: | Month | 26,895,160 | 20,821,646 | 26,412,167 | 3,429,468 | 2,000,027 | 1,956,326 | 2,393,952 | 4,482,000 | 88,389,746 |
| | Daily average | 867,586 | 671,666 | 852,004 | 110,628 | 64,517 | 63,107 | 77,192 | 141,258 | 2,851,283 |
| November: | Month | 21,317,540 | 19,193,760 | 24,896,034 | 3,430,560 | 1,911,060 | 1,853,565 | 2,350,110 | 4,029,000 | 78,981,629 |
| | Daily average | 710,585 | 639,798 | 829,868 | 114,352 | 63,702 | 61,785 | 78,337 | 134,300 | 2,632,720 |
| December: | Month | 21,705,554 | 20,092,876 | 25,609,823 | 3,549,066 | 1,917,071 | 1,878,352 | 2,378,754 | 4,168,100 | 81,299,596 |
| | Daily average | 700,179 | 648,156 | 818,394 | 114,486 | 61,841 | 60,592 | 76,734 | 134,455 | 2,622,561 |
| January: | Month | 21,983,242 | 20,302,584 | 25,284,352 | 3,273,197 | 1,817,685 | 1,780,969 | 2,151,090 | 4,216,000 | 81,309,519 |
| | Daily average | 709,137 | 671,064 | 815,624 | 105,587 | 58,635 | 57,451 | 69,390 | 136,000 | 2,622,885 |
| February: | Month | 20,885,660 | 17,977,624 | 23,314,637 | 2,965,704 | 1,608,376 | 1,738,425 | 2,027,984 | 3,780,000 | 74,298,410 |
| | Daily average | 745,916 | 642,058 | 832,666 | 105,918 | 57,442 | 62,087 | 72,429 | 135,000 | 2,653,517 |
| March: | Month | 19,699,979 | 19,112,306 | 25,503,880 | 3,594,395 | 1,817,871 | 1,943,093 | 2,337,028 | 4,231,500 | 78,149,353 |
| | Daily average | 635,483 | 616,526 | 822,679 | 113,045 | 58,641 | 62,680 | 75,388 | 136,500 | 2,520,943 |
| April: | Month | 18,768,743 | 19,541,310 | 24,799,768 | 3,734,253 | 1,724,460 | 1,909,552 | 2,334,810 | 4,134,000 | 76,946,896 |
| | Daily average | 625,625 | 651,377 | 826,658 | 124,475 | 57,482 | 63,652 | 77,827 | 137,800 | 2,564,897 |
| May: | Month | 19,044,444 | 20,587,503 | 26,214,068 | 3,978,385 | 1,659,895 | 1,914,290 | 2,565,219 | 4,402,000 | 80,365,804 |
| | Daily average | 614,337 | 664,113 | 845,615 | 128,335 | 53,545 | 61,751 | 82,749 | 142,000 | 2,592,445 |
| June: | Month | 18,020,795 | 19,754,900 | 25,643,705 | 3,765,060 | 1,704,060 | 1,923,621 | 2,519,190 | 3,880,000 | 77,211,331 |
| | Daily average | 600,893 | 658,490 | 854,791 | 125,502 | 56,802 | 64,187 | 83,973 | 129,300 | 2,573,711 |
| July: | Month | 18,802,024 | 18,032,514 | 25,910,929 | 3,541,409 | 1,713,680 | 2,079,769 | 3,275,894 | 3,844,000 | 77,200,219 |
| | Daily average | 606,517 | 581,694 | 835,835 | 114,239 | 55,280 | 67,089 | 105,674 | 124,000 | 2,490,338 |
| August: | Month | 18,770,466 | 17,355,034 | 25,538,513 | 3,491,530 | 1,700,102 | 2,151,120 | 3,193,341 | 3,417,000 | 75,517,106 |
| | Daily average | 605,499 | 556,614 | 823,823 | 112,630 | 54,842 | 69,391 | 103,011 | 110,226 | 2,436,026 |
| September: | Month | 17,934,306 | 16,509,120 | 23,640,726 | 3,405,510 | 1,583,280 | 2,008,060 | 3,339,010 | 3,396,000 | 71,766,012 |
| | Daily average | 599,477 | 550,304 | 788,023 | 113,517 | 52,776 | 66,935 | 107,967 | 113,200 | 2,392,199 |
| Total 12 months | | 243,377,913 | 229,681,577 | 302,768,101 | 42,068,537 | 21,157,627 | 23,137,142 | 30,765,382 | 47,979,600 | 941,435,839 |